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INDUSTRIAL HYGIENE PROBLEMS IN THE UNITED STATES

CHAIRMAN'S ADDRESS

R. R. SAYERS, M.D.

WASHINGTON, D. C.

Industrial hygiene has been defined as that branch of preventive medicine which has to do with the protection of health of the industrial population. It is much broader than the consideration of specific occupational diseases.

Occupational disease is a difficult term to define, for, in addition to the medical difficulties in determining the relationship between the associated industry and the disease, the difficulties are further increased by the fact that occupational diseases are often legally defined, and these legal definitions vary from state to state or from country to country. Many states have schedules of occupational diseases, and no other diseases can be considered as occupational in that particular state. In the Act on Occupational Diseases, recently passed in Illinois, it is stated: "In this Act the term 'occupational disease' means the disease arising out of and in the course of the employment. Ordinary diseases of life to which the general public is exposed outside of the employment shall not be compensable, except where the said disease follows as an incident of an occupational disease as defined."

These definitions may be quite limited, and from the standpoint of preventive medicine inadequate, even though they may be necessary legally and administratively.

The objective of industrial hygiene, in addition to the control of specific occupational diseases, is to reduce the incidence in occupational increase in those diseases common to adults in general. Industrial hygiene deals with problems of occupational poisons and dusts, ventilation, temperature and humidity, light, the noises and nuisances, cleanliness and plant sanitation, overcrowding, hours of labor, rest periods and fatigue, child labor, women in industry, medical and nursing services, physical examinations, communicable diseases in a factory, and personal hygiene. From this aspect, industrial hygiene is nearly as broad as preventive medicine.

Before undertaking the control of industrial health hazards, it seems logical that knowledge be obtained as to where, when and how they occur. To secure such information it has been found helpful to study the morbidity and mortality statistics of industrial workers and to make preliminary plant studies to locate the potential industrial hygiene problems, and medical and engineering surveys, together with necessary laboratory research, in which all data pertaining to the particular problem are secured and correlated.

According to the census of 1930, about 49 million persons were actively employed in the United States. Of this number about 15 million were employed in the manufacturing, mechanical and mineral industries. In these industries there are more than 900 occupations that have been considered potentially hazardous to health. From the census data the distribution may be had of the workers by states and by industries, as building, chemical, clay, glass, iron and steel, or mineral production. These data are useful in that they show where studies can profitably be undertaken. Additional data can be obtained from nonstatistical sources; while the value of these is lessened by inaccuracies in occupational analysis and cause of death and by variation in reporting, some indication of the relative risk in various occupations is afforded. In the study of Dr. Louis Dublin the effects of occupational environment on three and one-half million wage earners insured by the Metropolitan Life Insurance Company from 1922 to 1924 were evaluated. This study showed, among other things, that the industrial worker at the age of 20 had an expectation of life of forty-two years, as compared with forty-nine years for the nonindustrial worker. Dr. Dublin concludes that, while hereditary differences may play some part, probably the most important factors are the conditions incidental to industrial employment. The value of mortality statistics is found to be limited in that they afford no information concerning illnesses that do not result in death. When supplemented by records of sickness it is possible to determine far more accurately the effect of any particular environment or process.

Since 1917 the U. S. Public Health Service, in cooperation with a number of industries, has been analyzing and reporting on the frequency of sickness causing disability of more than a week among approximately 160,000 male workers. The annual reports on this group contain the frequency rates for specific diseases. In one industry a high pneumonia rate was found. Factors apart from the working conditions, such as seasonal variation, influenza epidemics, economic status of the workers, their age and nationality, addiction to alcohol, and general prevalence of pneumonia in the community, were insufficient to account for the excess frequency of pneumonia. Analysis according to the conditions showed that the groups exposed intermittently to high temperatures, unsheltered work or drafty conditions experienced the disease and accounted for the major part of the excess for all groups under study.

In ascertaining the effect of occupation on the health of workers in dusty trades over a period of several years and causing an absence of more than a week, it was found that the incidence of respiratory diseases

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

was about three times as great in granite cutting as in general manufacturing, and that the rate of pulmonary tuberculosis was about forty times as great.

Employees in the groups studied in soft coal mining, textile plants and other industries experienced rates in absences of eight days or longer due to respiratory diseases which were not much above the average for male industrial workers in general.

At present industry does not possess data concerning the incidence of specific diseases for given ages, according to sex and by geographic areas, correlated with occupations. From experience it has been found that the records of industrial sick benefit associations and group sickness insurance plans are the most accurate available. A comparison of the sickness rates in any given group with the average or expected rate will indicate whether there is an increase in incidence associated with a particular occupation, and whether further study is needed.

PRELIMINARY STUDIES

In the absence of definite industrial morbidity and mortality statistics, some conception of the extent of the problem may be secured by a preliminary survey or study of the industrial establishment or establishments by one trained in industrial hygiene engineering. Such a preliminary survey or study should be of a type that will reveal the number of persons employed in the various occupations, the materials, processes and conditions associated with these occupations, and the welfare facilities afforded the workers in the plant. It must be emphasized, however, that the information obtained in such a study must not be interpreted as indicating in any manner that an exposure to an industrial condition or material necessarily implies injury to a workman but merely indicates the potentialities of the situation.

Such preliminary data, however, do not give quantitative information as to exposure from the point of view of possible systemic poisoning. This is determined by medical and engineering studies. Bloomfield and DallaValle [1] have discussed the method of engineering procedure.

In the engineering studies a record is made of the general environmental conditions in the workroom—for example, size of room, ventilation, illumination, facilities for cleanliness, and drinking water. As an example of using the data from this form, under item 1 the size of the workroom is given; under another (item 12) the workroom population at full production is shown. The observations are then compared with that which is considered good practice, and recommendations are made accordingly. An occupational analysis will show the number of persons in each occupation, and the number of activities in each occupation, also the number exposed to various conditions to be studied. Quantitative determinations are made of the particular health hazard in each activity. These exposures are correlated with the activities and occupations of the men, together with a study of their physical condition and their past and present illnesses, both the engineer and the physician being acquainted with the requirements of each occupation in each industry and with the exposure. It is possible thus to make recommendations as to measures for the elimination or control of the disease.

The engineering methods include isolation of the hazardous processes; ventilation, general and exhaust locally; and personal protective devices, such as respirators, canister type masks, fresh air or hose type masks, protective clothing, suitable bathing facilities, and good housekeeping within the plant. This last is a most important control measure in industrial hygiene and is included in the industrial sanitation codes in many states and in the Safety Code for Industrial Sanitation in Manufacturing Establishments, approved by the American Standards Association and sponsored by the United States Public Health Service.

The medical control for the protection of the health of the industrial worker depends on knowledge of the industry and of the occupation and activities within each occupation, and physical examination of all persons, especially those exposed to substances or conditions hazardous to health. Such physical examinations should be performed by some impartial person or agency mutually acceptable to the employer and the employee. It should be kept in mind that the purpose of physical examinations is for the protection of the health of the individual examined and the health of other workers with whom he is associated, great care being taken to insure that such physical examinations shall not be used to the detriment of the worker.

Frequency of Disabilities of Specified Duration Among Men Employed in Certain Industries

Diseases Causing Disability	Cement Plant	Granite Cutting	Coal Miners		Textile Plant	Silverware Manufacturing	Municipal Dust	General Manufacturing
			Anthracite	Bituminous				
	Annual Number of Cases per Thousand Men (in Terms of Years of Life Under Observation)*							
Eight-day or longer cases:								
Sickness, exclusive of accidents	156.0	176.0	193.0	111.0	99.0	138.0	138.0	87.0
Respiratory diseases	89.0	120.0	89.0	60.0	52.0	38.0	61.0	41.0
Influenza and grip†	59.0	34.0	44.0	36.0	44.0	15.0	34.0	19.0
Bronchitis	7.8	3.0	19.0		1.2	1.4	7.2	5.5
Respiratory tuberculosis	1.3	37.0	4.5	0.0	0.0	0.0	0.0	0.9
Pneumonia, all forms	1.3	4.5	0.9	7.7	1.2	1.4	1.8	2.9
Digestive diseases	13.0	14.0	31.0	10.8	5.0	21.0	12.0	12.0
Diseases of nervous system	2.6	8.2	3.6	1.5	7.5	11.0	4.1	4.9
Circulatory and genito-urinary	11.0	6.7	6.3	1.5	5.0	14.0	9.5	5.8
Diseases of the skin	9.2	0.7	9.9	3.0	5.0	2.8	5.4	4.0
Rheumatism, acute and chronic	13.0	4.5	21.0	4.6	6.2	5.6	9.9	5.2
Two-day or longer cases:								
Sickness, exclusive of accident	706.0	247.0	940.0	525.0	952.0	325.0	394.0	.....
Respiratory diseases	427.0	165.0	449.0	229.0	512.0	178.0	169.0	.....
Diseases of upper respiratory tract‡	212.0	59.0	231.0	191.0	309.0	102.0	64.0	.....
Influenza, grip§	206.0	43.0	181.0	12.0	186.0	66.0	79.0	.....
Asthma	0.0	2.2	3.6	0.0	8.7	4.2	0.0	.....
Pleurisy	2.6	11.0	9.0	2.0	2.5	4.2	6.8	.....
Tuberculosis, active and suspected	1.3	45.0	5.4	0.0	0.0	1.4	9.0	.....
Number of years of life under observation	763.0	1,346.0	1,116.0	494.0	801.0	715.0	2,220.0	112,686

* Rates based on less than 10 cases are in bold face.
† Different periods covered between 1922 and 1927. No severe epidemics of influenza occurred during these years.
‡ Including diseases of the pharynx and tonsils.
§ For eight-day and longer cases, 650.

1. Bloomfield and DallaValle: The Determination and Control of Industrial Dust, Pub. Health Bull. 217.

Recently a number of state departments of health have shown interest in establishing divisions of bureaus of industrial hygiene, with the following functions in view:

Administrative:

(*a*) Arrange for securing and investigating reports of occupational diseases to the state department of health.

(*b*) Secure reports of all diseases for which sick benefits are paid by industrial sick benefit organizations in the state department of health.

(*c*) Cooperate and provide a source of information for other state departments, such as industry, labor, insurance and medical interests, or any agency interested in industrial hygiene.

(*d*) Educational program to acquaint industry and various groups interested as to the importance of the problem.

Field Investigations:

(*a*) Preliminary survey to determine the scope and nature of the industrial hygiene problems in the state.

(*b*) Surveys by field personnel of plant conditions causing or suspected of causing occupational diseases, in order that the department may advise or make recommendations for the control of existing or potential health hazard.

It is believed that, if such bureaus are administered in a way to obtain the cooperation of the employer, employee, medical profession and other interested state departments, such as labor, mines and insurance commissions, to whom they should be of service, the life of the industrial worker may be materially prolonged.

Office of Industrial Hygiene and Sanitation, U. S. Public Health Service.

TRANSITORY SYNOVITIS OF THE HIP JOINT IN CHILDHOOD

JEROME G. FINDER, M.D.
IOWA CITY

Transitory synovitis of the hip joint in childhood often remains unrecognized despite its relatively frequent occurrence. Usually the disease is erroneously diagnosed as tuberculosis of the hip, although the subsequent course and ultimate prognosis in the two conditions are vastly different. Other terms employed to designate this disease are coxitis serosa seu simplex, coxitis fugitive, coxitis ephemere, coxitis fugax, coxitis incertae causae, and transitory arthritis of the hip joint. Twenty-two cases have been recognized in this clinic since 1916; it is significant that since our attention has been focused on this syndrome the diagnosis has been made seven times in the past two years.

ETIOLOGY

Various factors have been indicated as responsible for the development of transitory synovitis of the hip joint. Butler[1] believes that infection, rather than trauma, is the chief cause. However, aseptic embolus, chemical toxins, mechanical-static imbalance, and climatological fluctuations have been blamed.[2] I am inclined to agree with Butler that an underlying, nonspecific infective focus is usually responsible. Since the disease process per se is not specific, any one of several factors may be the cause of the syndrome.

In ten of our cases, five different factors which might have even a very remote contributory effect were recorded. In four instances, trauma resulting from a fall was held responsible. Muscular strain (tap dancing and track athletics), contagion (measles and scarlet fever) and infection (influenza and tonsillitis) each accounted for two cases. Granting that the factors named may have played an etiologic rôle, I am still at a loss in demonstrating a plausible cause in more than half (twelve) of the cases. Butler could find no obvious reason in thirteen cases in his series of twenty-two.

Age.—The youngest patient observed in this series was 11 months old, the oldest 14 years of age; the average for the whole group was 5.4 years. Nineteen children (86 per cent) who were affected were 8 years old or younger; the remaining three (14 per cent) were in the age group of 9 to 14 inclusive. The average age in Butler's group was about 7 years.

Sex, Laterality, Race.—Males and females were equally affected; Butler found males to predominate over females in the ratio of 17 to 5. No racial predisposition was noted. The right hip was involved twelve times, the left ten times.

SYMPTOMS

Prodromal.—In eight cases the active symptoms were preceded by prodromal events, but the variety of manifestations precludes their specificity. In one case slight pain in the thigh preceded the onset for ten days; in a second, intermittent pain was noted in the knee for eighteen months; in a third, some stiffness was felt in the back of the knee over a five months period. One child was restless and slept poorly for one week, another ushered in the disease with vomiting and fever for two days, and in one instance an intermittent fever of unknown source, rising to 103 F., was repeated over a period of three months. In one case, symptoms developed during convalescence from influenza, while in another the syndrome became evident during the third week of scarlet fever.

In view of the protean manifestations of the prodromal events, one may feel that some of the introductory phases were unrelated to the oncoming disease. On the other hand, intermittent fever, restlessness, vomiting or infection of some type, which so often precede such diseases as the acute exanthema, acute anterior poliomyelitis, meningitis, influenza or bronchopneumonia, may carry the same relation to acute synovitis that they bear to the better known nosologic entities. In short, although the prodromes are nonspecific in character, their premonitory significance, as in other diseases, should not be disregarded.

Onset.—The onset is about equally divided between the acute (ten cases) and insidious (twelve cases) types. The same ratio holds true in the eight cases preceded by a prodromal stage. The latent period, during which symptoms progressed before the patient was presented for medical advice, varied from one day to ten weeks. The average patient came to this clinic after symptoms had persisted for slightly less than one month. During this period seven patients had had previous treatment elsewhere; bed rest was prescribed in six cases for alleviation of prodromal or initial symptoms; in one instance, osteopathy was tried.

Symptoms.—The symptoms, in order of their frequency, are limp, pain, frequently referred, night cries and restlessness. Limp occurred in seventeen cases (77 per cent). It varied from a slight alteration of the gait, especially when the patient was fatigued, to a marked abnormality of locomotion. Pain was a

From the Department of Orthopedic Surgery, Children's Hospital, Iowa City, service of Dr. Arthur Steindler.

1. Butler, R. W.: Transitory Arthritis of the Hip Joint in Childhood, Brit. M. J. **1**: 951 (June 3) 1933.

2. Belmonte, A. C.: Over Voorbijgaande, Goedaardige "Coxitis" (Coxitis Fugax), Nederl. tijdschr. v. geneesk. **75**: 5197 (Oct. 17) 1931.

prominent feature in thirteen cases (59 per cent); it was marked in nine cases, dull in two, and of aching character in two. The pain was often (eight cases) referred: to the knee (five times), occasionally along Poupart's ligament into the groin (two instances) and once to the anterior aspect of the thigh. Five children (22 per cent) were known to have night cries, in one case associated with marked restlessness.

Signs.—Tenderness to pressure, limitation of hip motion, and positive Patrick and Trendelenburg signs were the chief objective signs. Tenderness to pressure, anteriorly, over the head or neck of the femur of the affected hip joint, was elicited in nine (41 per cent) of the cases.

Limitation of motion was noted in many of the cases. The position of protection was the one most frequently assumed—adduction, flexion and internal rotation—or an incomplete combination of one or more of its component attitudes. Limited abduction was present seven times; incomplete extension in four cases, and decreased external rotation in four cases. Internal rotation was limited in five instances, adduction and flexion each once. Five patients exhibited restriction of all hip motions, rather markedly in one child and slightly in the other four. About one third of all cases (seven) showed no limitation of hip motion.

Leg Signs: The Trendelenburg sign was positive in six cases (27 per cent). This may be explained by a relative insufficiency and atrophy of the gluteal muscles as the result of their stretching by the attitude of adduction spasm or contracture. The Patrick sign was positive in four children (17 per cent). This finding is congruous with the relatively frequent contracture in flexion, adduction and internal rotation.

General Data.—Foci of Infection: Infected tonsils were present in five children, three of whom had subsequent tonsillectomies. In a single case of otitis media, drainage by a myringotomy was done.

Temperature: A slight elevation of temperature was recorded in most cases but rose above 100 F. in only one fourth of the cases.

White Blood Count: The white blood count, which was recorded in six cases, varied between 7,700 and 14,100, with a mean of 10,325.

Tuberculin Sensitivity: In fifteen skin tests the tuberculin reaction was negative twelve times and positive twice; in one case the reaction was negative but became positive when repeated at a later date.

X-Ray Examination.—It is self evident that the roentgenograms in these cases are negative for demonstrable lesions, since the pathologic changes are presumably confined to the synovial membrane. In some joints, however, a certain degree of bone resorption develops as a result of atrophy from disuse. An interpretation of erosion of the joint end should be made with reservation, because the irregularity may merely represent changes of the subchondral bone consistent with increased vascularity of the joint end, collateral to the synovitis.

TREATMENT

Treatment is essentially conservative. In one case, apparently past the acute stage, restricted activity sufficed to bring about complete subsidence of symptoms. Bed rest, averaging about 2.3 weeks, was prescribed for eleven children (50 per cent); to two of these, Buck's extension was added. In those cases which appeared to be more severe and were of longer duration, immobilization in a plaster-of-paris hip spica was done for an average period of two months. Ten cases were treated by this method. The period of immobilization was elastic, however; it was chiefly determined by the celerity with which symptoms and muscle spasm disappeared: in one instance the cast was removed after three weeks, but in another child it was necessary to prolong cast treatment for almost five months.

The after-treatment consisted of physical therapy, especially radiant heat, massage and diathermy, followed by passive movement, and finally active exercises through the full range of hip joint motion. General hygienic measures were considered an integral part of the treatment. Foci of infection were eliminated, diet regulated, plenty of rest advised and vitamin-bearing tonics prescribed.

PROGNOSIS

In genuine cases of transitory synovitis of the hip joint, the outcome is uniformly good. Belmonte says "it is wonderful how, in several days, the functional disturbance completely disappears. After ten to fourteen days all complaints depart." Butler is likewise optimistic. He concludes: "The prognosis of this transitory arthritis is excellent. A follow up of twenty-two cases for an average period of three years has been given." A similar prognostic inference is made by Bradford and Lovett,[3] who say that "in children the diagnosis of synovitis of the hip joint should be made only when recovery has occurred in a few weeks and has proved permanent." In our series of twenty-two cases there was complete cure of symptoms and restitution of function in twenty patients. In one child the positive Trendelenburg persisted for three months after all other signs and symptoms had disappeared. In the remaining case a mild recurrence in the form of referred knee pain developed with the onset of influenza five months after all original symptoms had disappeared. These secondary symptoms likewise vanished several days after weight bearing had been resumed in the convalescence. This particular case was instructive also in other respects and is considered in detail in the discussion which follows.

COMMENT

The disease under discussion has been designated as transitory synovitis rather than the broader term arthritis, since the lesion seems to be confined to the synovial membrane. Many of the cases were undoubtedly seen in the acute stage, but in neglected cases the disease was more probably in the subacute or chronic stage. The histologic examination in one case was confirmatory. Although the symptoms may be protracted in some cases, they may still be considered as "transitory," since resolution is ultimately complete.

The symptoms of transitory synovitis of the hip joint in children may be simulated closely by the early stage of other forms of hip joint disease. This is to be expected, since the synovial pathologic condition may represent the initial lesion in several types of coxitis. The local resistance and immunity of the synovial tissue may determine whether the infection subsides or progresses into a definite form of arthritis. In other words, in transitory synovitis of the hip joint the synovitis constitutes the entire disease, but in other hip joint lesions the synovitis may merely represent the point of departure into any one of several disorders of the hip.

3. Bradford, E. H., and Lovett, R. W.: Orthopedic Surgery, ed. 5, New York, William Wood & Co. 8: 143, 1922.

The greatest difficulty in diagnosis lies in those borderline cases which closely resemble an early tuberculosis of the hip joint. The physician is confronted with choosing between the needless embarrassment of joint motion by prolonged immobilization in a case of simple synovitis or the graver danger of aggravating tuberculous hip disease by physical therapy and motion after inadequate immobilization. A valuable diagnostic procedure lies in aspiration of the hip joint and inoculation of a guinea-pig with the joint fluid to establish or rule out tuberculosis. Low grade purulent arthritis may be discovered by a cell smear and culture of the cloudy fluid. An excellent point is made by Butler, who advises that these borderline cases should be regarded as "observation hips." By this regimen cases which formerly would have been accepted as definitely tuberculous are now put under observation until the trend of the disease becomes definitive.

REPORT OF CASE

The following case history is presented because it illustrates clearly the difficulty of diagnosis in borderline cases:

History.—L. V., a white girl, aged 4 years, was first seen June 6, 1934. We learned that she had fallen from her tricycle eighteen months previously and had experienced intermittent pain in the left knee. Lately she had been improving, when moderate pain developed in the left hip associated with a limp.

Physical Examination.—This was essentially negative except for pain. There was an adduction (15 degrees), internal rotation (10 degrees) contracture.

Laboratory Examination.—The temperature was 99.2 F. The white blood count was 9,200. The tuberculin test was negative. Roentgen examination did not reveal any pathologic condition.

Treatment.—Immobilization in a hip spica was done for eight weeks.

Course.—When the cast was removed (August 10) the patient resisted all attempts to move the left hip but had a good range of painless active motion. The repeated tuberculin (Mantoux) test was now strongly positive to both human and bovine strains. Therefore, another spica was applied. Two months later (October 11) the cast was removed and motion found to be good. Roentgenograms, however, showed an increase in loss of calcium density in the head of the femur and roof of the acetabulum. A slight roughening appeared in the articular surface of the head of the femur. These facts, plus the knowledge that the patient's mother had died of tuberculosis, strongly suggested tuberculosis, so a biopsy was indicated to establish the diagnosis.

Operation.—The left hip joint was exposed at operation October 15 through a Sprengel incision. The capsular synovium was hypertrophied and a thin pannus crept over the joint surface at the margins of the head. The femoral and acetabular cartilage were normal in appearance. The bone of the acetabulum was entered subchondrally above the margins of the cartilaginous roof. Curettements of the bone, which was hard, could be removed thus without injury to the underlying cartilage. After closure of the wound, a hip spica was applied.

Pathologic Examination.—No signs of tuberculosis were noted in the specimens. The synovial tissue attached to the joint capsule showed only nonspecific, inflammatory changes, which were also present to a lesser degree in the fibrous capsule. The bone of the acetabulum was normal except for moderate osteoporosis unassociated with inflammatory changes. The joint cartilage from the margins of the acetabulum showed some early degenerative changes in the middle noncalcified layers. No signs of specific inflammation could be found. The diagnosis was chronic synovitis of the hip joint with collateral osteoporosis.

Postoperative Course.—The spica was removed after one month (November 15) and physical therapy was instituted. After four weeks there was complete, painless, unrestricted motion of the hip joint; one-fourth inch of atrophy of the thigh persisted.

Recurrence.—The patient had an attack of influenza in May 1935, five months after being considered cured. The pain was referred to the knee, similar to the onset of the primary symptoms. However, by the time walking was resumed during the convalescence, she was symptom free. The hip, when examined one year later, was entirely normal.

SUMMARY

1. Transitory synovitis of the hip joint is essentially a disease of children under 8 years of age. Twenty-two cases are reported.

2. The chief symptoms are limp, pain and muscle spasm. The temperature and white blood count may be elevated moderately. The tuberculin skin reaction and roentgen examination are usually negative.

3. The disease must be differentiated from the early stages of other forms of coxitis, especially tuberculosis. Aspiration of the hip joint and examination of the fluid are suggested as an aid in diagnosis.

4. The treatment is conservative: bed rest, traction or immobilization is advised in the early stages, and physical therapy subsequently. The prognosis for functional recovery is excellent.

THE CONTROL OF MENINGOCOCCIC MENINGITIS EPIDEMICS

BY ACTIVE IMMUNIZATION WITH MENINGOCOCCUS SOLUBLE TOXIN: A PRELIMINARY REPORT

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An epidemic of meningococcic meningitis is to be discussed in which all the present standard methods for prevention and control were given as thorough a trial as will usually be possible. A difficult problem presented itself in that cases continued to occur in spite of the application of these control measures.

Active immunization against the meningococcus, which heretofore had not been used in the presence of an epidemic, was then considered as a possible means of control, and a study of a meningococcus broth culture was begun to find a product for that purpose. The filtrate of the broth culture containing a soluble toxin [1] was selected as a skin testing and immunizing substance and was given a trial to determine its value as a means of control in the epidemic. It is recognized that to determine its value as a protective agent it will have to be used in numerous outbreaks.

SITUATION, CASE LOCATION, SEQUENCE AND MORTALITY OF THE EPIDEMIC

In the spring of 1935 an epidemic of meningococcic meningitis occurred in Atchinson County, Mo. There were seventeen cases; nine of these occurred in a CCC camp located in the environs of Tarkio, four in the adjacent town of Tarkio itself, three in Fairfax, a small village 8 miles distant, and one on a nearby farm.

The sequence is shown in chart 1. The first case occurred in Tarkio, in a middle aged housewife. Three months later the second, third and fourth cases occurred

From the Station Hospital and the Seventh Corps Area Laboratory.
Read before the Spring Medico-Military Symposium, arranged by the Kansas City Southwest Clinical Society, and the Medical Department, Seventh Corps Area, United States Army, Kansas City, Mo., March 10, 1936.

1. Ferry, N. S.; Norton, J. F., and Steele, A. H.: Studies of the Properties of Bouillon Filtrates of Meningococcus: Production of Soluble Toxin, J. Immunol. **21**: 293-312 (Oct.) 1931.

in the CCC camp. Following this, as can be seen on the spot map, the sequence was not continuous in any one place.

We were apparently dealing with a virulent strain or strains of the meningococcus. There was a mortality of 83⅓ per cent in six untreated cases outside the CCC camp.

CASE INTERVAL AND SOURCE OF INFECTION

The epidemic was slow in pace as is frequently the case. In the beginning in the camp, the first three cases occurred at intervals of seventeen days (chart 2); then, as might be expected, the interval was shortened and later the interval was increased again.

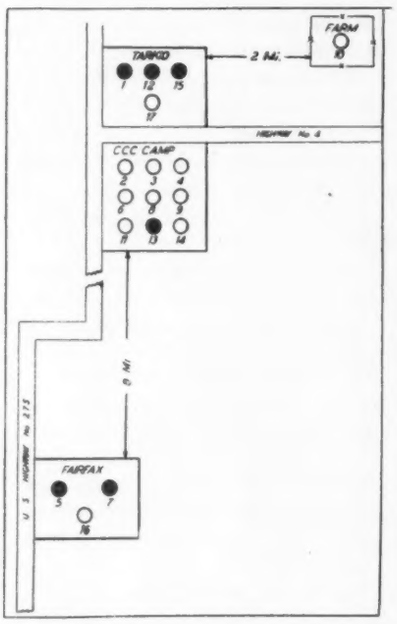

Chart 1.—Case, location, sequence and mortality in meningococcic meningitis epidemic. The white circles indicate cases in which recovery occurred and the black circles the fatal cases.

The source of infection in Camp Crystal[2] was highly problematic. As indicated in chart 2, patient 1 may have received his infection from a carrier. Patient 2 was an acting male nurse in the camp infirmary and nursed patient 1 a few hours before the case was diagnosed, and he was sent to Station Hospital, Fort Leavenworth. Patient 2, before symptoms of meningitis developed and before he was sent to the station hospital, nursed patients 3, 5 and 6, who were convalescing from the mumps. Of the remaining cases no close contact could be established. Although the foregoing is mentioned as a possible chain of transmission, these patients could very well have been individuals carrying meningococci in the nasopharynx, whose immunity became lowered to such an extent that they became infected with their own organism and developed a meningococcemia and meningitis. This could account for the long incubation periods that are noted on the chart.

Other factors that may have influenced the spread of meningitis in the camp were:

1. Weather conditions. The epidemic occurred in the spring of the year during an unusually long cold rainy season.

2. Crowding. This seemed to be a most important predisposing factor. The greatest number of cases occurred in Camp Crystal, where there was the greatest density of population.

3. Lowered immunity. There was a lowered immunity, as manifested by a high incidence of colds, influenza, nasopharyngitis, middle ear infections and mumps. The general physical condition of the men appeared to be good; most of them were seasoned enrollees with from five to six months' service.

2. The CCC camp, Company 1742, Tarkio, Mo., will be referred to as Camp Crystal.

CONTROL MEASURES

The usual measures for the control of meningococcic meningitis were instituted and were as follows:

1. Early diagnosis and isolation of known cases. The camp surgeon was alert and diagnosed his cases early, and the patients were immediately transferred to the isolation ward at the Station Hospital, Fort Leavenworth, Kansas.

2. Quarantine. The entire camp was placed under a working quarantine for fourteen days following each case.

3. Daily medical examination. Examinations were conducted daily to isolate promptly early cases of meningitis.

4. Bacteriologic examination. Bacteriologic examination for carriers and isolation of positive carriers were done.

5. Sanitation. A general clean-up program was instituted and maintained throughout the epidemic.

6. Personal hygiene. Detailed instructions were given to the men relative to this subject.

7. Prevention of the spread of the infection through eating utensils, food handlers, and food. Sterilization of eating utensils, culturing of food handlers and inspection of food were carried out.

8. Crowding. There was a reduction in crowding, fatigue and exposure.

9. Proper ventilation and bed spacing. Three feet between cots was required and head to foot sleeping was initiated.

Before the epidemic was over it was expedient to divide the camp into four side camps of approximately fifty men each. This, as can readily be seen, aided greatly in reducing close contact.

RESULTS OF BACTERIOLOGIC CULTURAL STUDY AT CAMP CRYSTAL

Because by some a great deal of confidence is placed in the control of epidemics by taking cultures of and isolating the carriers, a cultural study at Camp Crystal was undertaken to attempt to determine the value of this procedure.

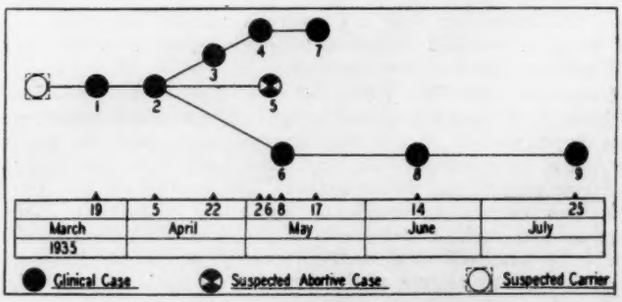

Chart 2.—Case interval and source of infection. Patient 2, a male nurse, nursed patient 1, the first case in the camp. The third, fifth and sixth patients to contract epidemic meningitis had mumps and were attended by patient 2 while he was in the prodromal stage of epidemic meningitis.

The plan of procedure was to take a culture of all the 250 enrollees, both positive and negative, on four successive weeks; also to take a culture of the members of another, nonepidemic camp, 20 miles distant, as a control, to determine whether the carrier rate was higher in the epidemic camp than in the nonepidemic camp. Table 1 presents the results of this study.

The greatest number of enrollees in the epidemic camp to yield positive cultures from the nasopharynx

at one time was eleven, or 4.4 per cent, and in the control camp seven, or 3.5 per cent. The greatest number showing typical colonies at one time, only on blood plates, was twenty-five in the epidemic camp and seventeen in the control camp. The difference is hardly significant.

A study of the records also showed that there were four types of carriers: (1) early cases, (2) temporary carriers, (3) intermittent carriers and (4) chronic carriers. These different types of carriers demonstrate the futility of taking cultures of and isolating all individuals who were carriers of meningococci. In order to find all the carriers in a camp it would be necessary to take cultures of the entire surface of the upper respiratory tract of each individual in the group at frequent intervals during the day over a long period of time.

TABLE 1.—*Cultural Study of Camp Crystal, Meningitis Camp, Missouri*

Cultures Made on All Enrollees at Weekly Intervals on 4 Successive weeks	First Culture 250 Men	Second Culture 245 Men	Third Culture 233 Men	Fourth Culture 213 Men	Control Camp 196 Men
Plates showing gram negative diplococci with clear gray colony	19	25	31	35	17
Positive typical meningococcus sugar reactions	3	7	11	8	7
Positive typical meningococcus agglutination reactions	3	7	11	11	7
Total number chronic carriers	2	2	2	2	
Total number carriers	3	7	11	8	7

Of the control measures used in the epidemic, the one considered to be of the greatest value was separating individuals the greatest distance possible from one another. Although this is desirable, it is not always possible to do this effectively.

All the other control measures used are important and, unless they have been enforced, not all has been done that can be done in controlling the disease. However, the fact remains that although all the present methods of control available were carried out, cases did continue to occur in this epidemic.

CONSIDERATION OF SKIN TESTING AND ACTIVE IMMUNIZATION AS A MEANS OF CONTROL

The greatest success in controlling infectious diseases in the past has been through the medium of artificial immunization. Ferry and Steele [3] in the spring of 1935 described the use of a meningococcus soluble toxin for skin testing and active immunization of 2,000 orphan children in Detroit. Two hundred and thirty-two children were immunized with meningococcus filtrate; eight weeks following immunization, 66.8 per cent were found to have negative skin test reactions.

If positive skin test reactions became negative after subcutaneous inoculation with soluble toxin, it was reasonable to infer that the same procedure might possibly protect them from developing the disease. No conclusive clinical data were available as to the protective value of active immunization with this toxin in the presence of an epidemic or the impending danger of an epidemic; nor were there data as to what the skin test would show on individuals as they were coming down with the disease or after they had recently recovered.

3. Ferry, N. S., and Steele, A. H.: Active Immunization with Meningococcus Toxin, J. A. M. A. **104**: 983-984 (March 23) 1935.

TESTS CARRIED OUT TO DETERMINE THE MOST SUITABLE PRODUCT FOR SKIN TESTING [4]

Our method of producing a skin testing substance was similar to that of Ferry,[1] which was simply to grow the meningococci in a hormone veal infusion broth medium [5] in 1,000 cc. Florence flasks. After cultivation for four days, the culture was killed by the addition of sufficient merthiolate to make a final concentration of 1:10,000 and was then passed through a Pasteur-Chamberland filter with a porosity of L_7. The most difficult phase of the production of the toxin was the technic of making cultures of recently isolated strains and the training of these strains to produce pellicles,[6] which appear to be necessary for toxin production. The inoculation of large flasks to produce heavy simultaneous growths and the mediums used for carrying the cultures will be described at a later date.

For the purpose of studying the separable fractions of the broth culture, it was divided into the following five parts, and skin tests with each portion were made on the same individual:

1. Merthiolated broth culture: The whole culture was killed and used as a skin testing substance. In this instance the various fractions that were used for comparison were obtained from the same broth culture that contained 2,000 million cocci per cubic centimeter.

2. Exotoxin: The filtrate from the meningococcus broth culture. This fraction hereafter will be referred to as exotoxin for the purpose of identification. There are two reasons why we believe that this is an exotoxin: (*a*) The filtrate of the autolyzed meningococci with distilled water grown on solid mediums did not produce positive skin reactions, and (*b*) in broth mediums meningococci were found to grow mainly on the surface in the form of a pellicle and up to the time of filtering showed no detectable precipitation of the pellicle, and no ruptured forms of meningococci on microscopic examination.

TABLE 2.—*Intracutaneous Tests Comparing the Reactions of Five Separable Fractions of Meningococcus Type I Broth Cultures* *

Name	Merthiolated Broth Culture	Exotoxin	Filtrate Exotoxin and Endotoxin	Heated Filtrate	Endotoxin
Kuhns	+	+	+	—	—
Moore	++	+	+	—	—
Mortensen	+++	++	+	—	—
Stohl	++	+	++	—	—
White	+	+	+	—	—
Gibbons	+	+	+	—	—
Moorman	+++	++	++	—	—
Dee	++	+	+	—	—
Hall	++	+	+	—	—
Godfrey	+++	+	+	—	—

* Criteria for reading skin tests: —, no reaction; + —, 5 mm. in greatest diameter; +, 1 cm. in greatest diameter; + +, 2 cm. in greatest diameter; + + +, 3 cm. in greatest diameter. Edema as well as erythema was noted in reading tests of fractions named. All skin tests were made with a dilution of 1:100. All tests were made intracutaneously with 0.05 cc. of test solution.

3. Filtrate containing exotoxin and endotoxin: The culture was incubated twenty-four hours after it was killed with merthiolate to produce complete autolysis of the meningococci and then filtered. This filtrate was added to an equal part of 2, thus giving a solution containing both an exotoxin and an endotoxin.

4. These tests were carried out with the assistance of Miss Pearl Moorman.

5. Todd, J. C., and Sanford, A. H.: Clinical Diagnosis by Laboratory Methods, ed. 7, Philadelphia, W. B. Saunders Company, 1931, p. 661.

6. Smith, Theobald: J. Exper. Med., 1899, p. 373.

4. Heated filtrate: The filtrate was heated to 120 C. at 15 pounds pressure for one hour. Boiling for one hour did not make the toxin inactive. Ferry has reported recently that autoclaving for thirty minutes will destroy the toxin in some filtrates.

TABLE 3.—*Intracutaneous Tests Comparing the Reactions of Five Separable Fractions of Meningococcus Type 2 Broth Cultures*

Name	Merthiolated Broth Culture	Exotoxin	Filtrate: Exotoxin and Endotoxin	Heated Filtrate	Endotoxin
Smith	++	++	—	—	—
Johnson	—	—	—	—	—
Ware	+	+	—	—	—
Dake	+—	+—	+—	—	—
White	+	+	+	—	—
Ryson	+	+	+	—	—
Winkler	++	—	—	—	—
Phillips	+	—	—	—	—
Crow	+	—	+	—	—
Wright	+—	—	—	—	—
Barton	+	—	—	—	—
Park	—	—	—	—	—

5. Endotoxin: This was made from the meningococci that remained after the culture was filtered through the Pasteur-Chamberland filter. These meningococci were autolyzed by adding distilled water and incubating for twenty-four hours [1] and diluting to the original quantity of the broth culture with saline solution.

Tables 2, 3, 4 and 5 show a comparison of the intracutaneous reactions of the five named fractions.

Column 1. Skin reactions from the whole culture were the greatest. Further studies should be made of the whole culture to determine its value as a skin testing substance. The additional reaction is thought to be due to the membranes of the meningococci themselves. A further study of this fraction is being made.

Column 2. This is the product or filtrate of the meningococcus broth culture to be given a trial in skin testing and active immunization for and against meningococcic meningitis.

Column 3. The fraction containing the exotoxin and the endotoxin produced approximately the same skin reactions as the exotoxin. This would suggest that the endotoxin present in this fraction was inactive as far as skin reactions were concerned.

Column 4. The fraction containing the heated filtrate showed on skin testing that the exotoxin was rendered

TABLE 4.—*Intracutaneous Tests Comparing the Reactions of Five Separable Fractions of Meningococcus Type 3 Broth Cultures*

Name	Merthiolated Broth Culture	Exotoxin	Filtrate: Exotoxin and Endotoxin	Heated Filtrate	Endotoxin
White	+	+—	+—	—	—
Godfrey	+	+	+	—	—
Slemp	++	+	+	—	—
Griffin	+	+	—	—	—
Hayes	+	+	+	—	—
Keeney	++	+	+	—	—
Owens	++	+	—	—	—
Ford	++	++	+	—	—
Stohl	+	+	+	—	—
Mortensen	++	—	—	—	—

inactive by the amount of heat it had received and indicates that the reaction caused by the exotoxin is caused by a substance which can be destroyed by heat. This serves also as a control for the reaction of the whole culture and the exotoxin.

Column 5. The fifth fraction containing the endotoxin is shown by the tables to be inert as a substance producing skin reactions. We also produced an autolysis of meningococcus grown on solid mediums in distilled water and found the exotoxin, when prepared in this manner, to be inert. Meningococci were also grown on solid mediums, washed with hormone broth and filtered, and the filtrate was used as a skin testing substance. It produced no reactions on ten individuals sensitive to the filtrate. This experiment was made to determine whether meningococci when grown on solid mediums would produce a toxin on their surfaces.

The results showed (1) that meningococcus exotoxin produces positive reactions on sensitive individuals, (2) that autolyzed meningococcus filtrate does not produce positive skin reactions on the same individuals, and (3) that the heated exotoxin does not produce positive skin reactions on the same individuals. The foregoing results are in confirmation of the experiment done by Ferry, Norton and Steele [1] in 1931, when the first study of a meningococcus soluble toxin was made.

Table 6 illustrates the average skin reactions to the five fractions in the order named.

TABLE 5.—*Intracutaneous Tests Comparing the Reactions of Five Separable Fractions of Meningococcus, Type 4 Broth Cultures*

Name	Merthiolated Broth Culture	Exotoxin	Filtrate: Exotoxin and Endotoxin	Endotoxin
Smith	++	+—	..	—
Johnson	+	+	..	—
Ware	+	+	..	—
Dake	+	+	..	—
Tyson	+	—	..	—
Winkler	++	—	..	—
Phillips	+	—	..	—
Crow	++	+	..	—
Wright	+	—	..	—
Barton	—	—	..	—
Park	++	—	..	—

TABLE 6.—*Average Intracutaneous Reactions to Filter Separable Fractions of Meningococcus Broth Cultures*

++	Whole culture (exotoxin, endotoxin and meningococci)
+	Exotoxin
+	Endotoxin and exotoxin only
—	Heated filtrate
—	Endotoxin

DETERMINATION OF THE SKIN TEST UNIT DOSE

In addition to using sensitive individuals to determine the skin test unit dose, similar to the manner of Ferry,[3] it was conceived that the skin test unit dose should be the amount of exotoxin that will give a positive reaction in an individual who is susceptible to the disease (as proved by his developing meningitis) and not the amount to which the individual is sensitive (and who does not develop the disease).[3] In using this conception there can be no question as to the susceptibility of the individual who develops the disease. A skin test on this individual, when the first symptoms are noted, should be the skin test unit of the susceptible. Accordingly, a patient developing the disease on the first day of symptoms was given skin tests in dilutions varying from 1:100,000 to 1:10. Only one case has been available for skin testing to determine the level of immunity reached before and after immunization. In the instance of Bales (table 7), when he came down with the disease he reacted to dilutions of 1:1,000. After recovery and following treatment with antimeningococcus serum he reacted only to 1:10, thus showing that a positive skin test with a dilution of 1:100 before

his illness would have indicated his susceptibility and would have been the proper skin test dose in this case. To determine more accurately the skin test dose to which the average susceptible individual will react and the average amount of immunizing substance necessary to produce the level of immunity desired, these skin test titrations should be done in a large series of cases in which the disease is actually developing.

TABLE 7.—*Skin Reaction Dose on a Susceptible Individual on Developing the Disease and After Recovery* *

Patient's Skin Tested 1st Day of Disease	Dilutions of Exotoxin Used	Reactions Noted
Before treatment	1:100,000	—
	1:10,000	—
	1:1,000	+
	1:100	+
	1:10	+
After recovery; Bales had received 95 cc. concentrated Lilly's antimeningococcus serum. He reacted to type 3 and not to type 1 exotoxin	1:1,000	—
	1:100	—
	1:10	+—

* Case of Bales.

Since beginning this work we have made skin tests of all patients with meningococcic meningitis four and six weeks after they recovered from the disease (table 8). Table 8 indicates that immunity to meningococcus exotoxin is present after recovery from the disease and that the exotoxin skin test may reflect the amount of immunity possessed by an individual.

For the purpose of obtaining further data as to what dilution of our toxin would produce a positive reaction on the average sensitive individual, skin tests of twenty recruits for the army were made. The results are shown in table 9.

At this time we were unable to titrate the toxicity of our toxin by the use of animals.[7] Of the animals used —rabbits, guinea-pigs and mice—only rabbits could be killed occasionally. We hope to give mice a further trial by active immunization with toxin for protection against meningococci suspended in mucin given intraperitoneally.[8]

Skin test reactions on individuals sensitive to the exotoxin were used to determine the toxicity of each new lot of exotoxin produced. In the future this dose may be controlled in a degree by testing individuals developing the disease.

TABLE 8.—*Intracutaneous Exotoxin Tests in Convalescent Cases*

Cases	Skin Reaction 4th Week of Convalescence	Skin Reaction 6th Week of Convalescence
Chapman	—	—
Sparger	+—	—
Duffield	—	—
Stannard	—	—
Borjorquez	—	—
Bales	—	—

Dilution of 1:100 of filtrate used for skin testing.

SKIN TESTING AND IMMUNIZATION AT CAMP CRYSTAL [9]

After all the control measures available were used, meningitis cases, as stated before, continued to occur at Camp Crystal, the last one being July 25, 1935. In addition to the continuation of control measures, it was decided to make skin tests and to immunize all the enrollees at Camp Crystal with meningococcus exotoxin, August 8. Passive immunization by the use of antimeningococcus serum was considered but was not deemed practical in this situation.

Recently cultured meningococcus epidemic strain type 3 and stock strains from the National Institute of Health types 1 and 3 were used in producing the exotoxin for skin testing and immunizing the members of the camp. Equal parts of the filtrate from the three strains were used. The epidemic strain, type 3, was found to be a very virulent strain. The skin test unit dose of this exotoxin was 0.05 cc. of 1:1,000 dilution of the filtrate. That is, it produced an edema and erythema 1 cm. in diameter in sensitive individuals, seven out of twenty, as shown in table 9.

Recently 2,000 CCC enrollees, enrolled directly from urban and rural civilian life, were skin tested with 1:1,000 dilution of filtrate made in April 1936, and in this group 37 per cent were found to have a one plus or greater skin test reaction.

TABLE 9.—*Exotoxin Sensitivity Intracutaneous Tests in Twenty Recruits* *

1:100	1:1,000	1:10,000	1:100,000
14 positive	7 positive	All negative	All negative

* Exotoxin used in this test was one month old.

TABLE 10.—*Results of Skin Tests at Camp Crystal Before and After Subcutaneous Inoculation with Full Strength Meningococcus Filtrate Types 1 and 3*

1.	Total number of men tested	187
2.	Total number men positive one plus or greater	14 (7.4%)
3.	Total number men immunized with 0.1 cc., 0.2 cc., 0.3 cc. and 0.7 cc. full strength filtrate at weekly intervals	165
4.	Results of skin tests three weeks following immunization	
	a. Number skin tested	94
	b. Number positive one plus +	0
	c. Number positive plus minus +—	5
	d. Number negative	89

Table 10 gives the results of skin tests before and after immunization with full strength filtrate. This was given at weekly intervals, and after it was completed each individual had received a total of 1.3 cc. of full strength filtrate, which, by use of the titration already stated, contained 26,000 skin test units.

Because of the rapid change in personnel in the camp, only ninety-four of the original 187 men were available for testing following immunization. The percentage positive of the ninety-four before immunization was 5.3 and following immunization 0. We were unable to take skin tests of these men at a later date to determine whether additional immunity had developed. There were only slight local reactions to the small immunization doses that were given. For this reason it is possible that larger doses of the filtrate could be tolerated. Experiments are being conducted at the present time to determine how large an immunizing dose of the full strength filtrate can be tolerated. Controls containing the same concentration of merthiolate and broth were used with all skin tests, and in all cases the results were negative. All new enrollees admitted to the camp following this were immunized on admission. No further cases of meningitis developed in the camp following immunization.

7. Branaham, Sarah: National Institute of Health, personal communication to the author. Rake, Geoffrey: Studies on Meningococcus Infections, J. Exper. Med. **57**: 549-559 (April) 1933.
8. Miller, C. P.: Experimental Meningococcal Infection in Mice, Science **78**: 340 (Oct. 13) 1933.
9. This was done with the cooperation of Dr. Charles Fogarty.

The change in the confidence of the enrollees and all the civil groups was quite noticeable, so much so that the health officer and school board of Tarkio requested that the children of the high school and grade school be given the same advantages as the enrollees in the camp. With the cooperation of the Missouri State Board of Health, the camp surgeon carried out skin testing and immunization in the high school and grade school. The same exotoxin was used as for the Camp

TABLE 11.—*Comparison of Intracutaneous Reactions of Meningococcus Filtrate Made, July 1935 and April 1936 on 840 Enrollees with from Four to Seventeen Months' Service*

Meningococcus toxin made July 1935		
Number positive skin reactions one plus or greater	151	18%
Meningococcus toxin made April 1936		
Number positive skin reactions one plus or greater	235	28%

Skin tests made May 18, 1936. 0.05 cc. of a dilution 1:100 of full strength filtrate from a whole broth culture containing 2,000 million cocci per cubic centimeter was used.

Crystal group, but, since it had decreased in toxicity [3] in the two months intervening, a dilution of 1:300 was equivalent to 1:1,000 by skin tests on controls.

Since the first batch of filtrate was made, ten new filtrates have been made and have been found to hold their potency remarkably well; 0.05 cc. of a dilution of 1:100 of the filtrate has been found to produce constantly a reaction 1 cm. or greater in sensitive individuals. A meningococcus filtrate made nine months ago shows 10 per cent less skin reaction when the old and the new filtrates were compared by skin testing on the same 840 enrollees (table 11). The filtrate is now being made from equal parts of types 1, 2, 3 and 4 stock strains from the National Institute of Health and types 1, 2 and 3 from epidemic strains in this area.

TABLE 12.—*Effect of Active Immunization on Intracutaneous Tests of School Children, Tarkio, Mo.**

	Before Immunization		After Immunization	
	Number	Percentage	Number	Percentage
High School Children				
Number tested	64		64	
Plus minus	16	25.0	7	10.9
One plus	5	7.8	0	0.0
Two plus	1	1.5	0	0.0
Four plus	1	1.5	0	0.0
Grade School Children				
Number tested	86		86	
Plus minus	39	45.3	9	10.4
One plus	7	8.13	0	0.0
Two plus	2	2.32	0	0.0

* Immunizing dose for high school children: full strength filtrate 0.1 cc., 0.3 cc., 0.4 cc., at weekly intervals, given subcutaneously; 1:300 dilution of filtrate used; 4,800 skin test units of toxin used. Grade school children: full strength filtrate 0.1 cc., 0.2 cc., 0.25 cc., at weekly intervals, given subcutaneously; 1:300 dilution of filtrate used for skin testing.

The results on the school children are included because of the value of the data obtained by using two different age groups (table 12). The last skin test was made one week after the last immunizing dose. A further investigation is being made to see how much and how soon immunity develops. In the school children it was noted that the children in a family that had recently moved to the community showed greater sensitivity on skin testing than the others. Seven months has elapsed since the children in this community were immunized, and, although four additional cases have occurred during that time, not one has occurred among those who were immunized.

AN EXAMPLE OF HOW SKIN TESTING AND IMMUNIZATION WITH MENINGOCOCCUS EXOTOXIN MAY BE USED FOR THE CONTROL OF A MENINGITIS EPIDEMIC [10]

The ideal situation in which to use active immunization is not after the epidemic has progressed but obviously at the onset of the epidemic. Such a situation presented itself at Burlington, Kan., in Camp Coffey, a CCC camp. There again known control measures were used after the first case occurred but did not prevent a second case from occurring in twelve days. On the development of the second case, skin testing and immunization of the camp with our toxin were begun.

At the same time a culture study of the camp was made for carriers by Ross Laybourn, Kansas state bacteriologist, the results of which are included in table 13.

For skin testing and immunization, meningococcus exotoxin types 1 and 3, from one of the recently isolated Tarkio strains, and from stock strains from the National Institute of Health, were used. The skin test dose in this instance was 0.05 cc. of 1:100 dilution of the filtrate. Table 14 gives the results of the skin tests before and after immunization. To prevent a reaction

TABLE 13.—*Cultural Study of Camp Coffey, Burlington, Kan.*

Plates showing gram-negative diplococci with clear gray colony	67
Positive typical meningococcus sugar reactions	31
Positive typical agglutination reactions	7
Total number chronic carriers	2
Total number temporary carriers	5

due to trauma rather than to the toxin, 0.05 cc. of skin testing solution was used. Up to the present time no skin reactions have been obtained from using the merthiolated broth or the heated filtrate.

In table 14 a study of the results from skin testing at Camp Coffey before immunization show that 43 per cent of the enrollees gave a one plus or greater skin reaction. Seventy-two of this 43 per cent were immunized with the filtrate and 20 per cent gave positive skin tests six weeks after immunization was initiated. Four months following immunization, forty-one were available for skin testing, and of these only 2 per cent were positive, which indicated that there was a definite trend from positive to negative.

In selecting the enrollees for immunization, only those showing one plus or greater skin reaction were immunized. In order to prevent severe reactions when immunizing, the skin test may be used as a protective measure. If the individual on skin testing exhibits a skin reaction greater than 3 cm. in diameter this fact should be considered as a danger signal and the size of the immunizing dose should be adjusted in direct proportion to the skin reaction. By using this criterion, immunization can be carried out without danger of severe reactions to the toxin. Six of the seven enrollees found on culture to be carriers had a one plus skin test. There were no severe initial cutaneous reactions in this series in which the following doses were used at intervals of four days (table 11). A four day interval was used because it had been found that

10. This experiment was carried out with the assistance of Dr. Timothy P. Flynn.

the local reaction usually disappeared in from two to three days and because of the fact that the more rapid the immunization the more valuable the procedure in the presence of a possible epidemic.

The decrease in local reaction to the substance suggests that the enrollees in this instance developed immunity very rapidly. Up to the present time no further cases of epidemic meningitis have occurred in the camp or in the outside community.

TABLE 14.—*Results of Skin Tests at Camp Coffey Before and After Subcutaneous Inoculation with Full Strength Meningococcus Filtrate, Types 1 and 3*

1. Total number men tested	207
2. Total number men showing one plus or greater skin test reaction	89 or 43%
3. Total number men immunized with 0.2 cc., 0.5 cc., 1 cc., 1.5 cc. full strength filtrate at 4 day intervals	80
4. Results of skin testing 6 weeks following immunization:	
a. Number tested of original positives	72
b. Number showing one plus or greater skin test	15 or 20%
c. Number plus minus	52 or 72%
d. Number negative	5 or 6.9%
5. Results of skin testing 4 months following immunization:	
a. Number tested of original positives	41
b. Number showing one plus or greater skin test	1 or 2%
c. Number plus minus	15 or 36%
d. Number negative	25 or 72%

0.05 cc. of a dilution 1:100 of full strength filtrate was used for skin testing.

0.05 cc. of merthiolated broth was used as a control on the skin tests and were negative.

SUMMARY

1. An epidemic of meningococcic meningitis occurred in which there were seventeen cases.

(*a*) The greatest number of cases occurred where there was the greatest density of population, in a CCC camp near a small town.

(*b*) The mortality in the epidemic was 83 per cent in six untreated cases outside the CCC camp and 11 per cent in nine cases treated early with antimeningococcus serum.

2. A culture for carriers was made in the CCC camp, Camp Crystal, on four successive weeks and the highest number found positive at one time was 4.4 per cent. A culture was made at the same time on a nonepidemic camp 20 miles distant and 3.5 per cent were positive.

On another cultural study made by Ross Laybourn at Camp Coffey, 3.5 per cent were found positive.

3. It was noted that cases continued to occur in the CCC camps after all the control measures available at the present time were enforced. The control measure considered to be of the greatest value was the separation of individuals the greatest distance possible from one another.

4. A study of filter separable fractions of meningococcus broth culture was made to determine the skin reactive properties of Gordon's four types of meningococcus.

(*a*). It was found that the whole culture produced the greatest reaction and the filtrate produced the next greatest reaction.

(*b*) The heated filtrate produced no reaction and served as a control.

(*c*). The filtrate from autolyzed meningococci, or endotoxin, produced no skin reaction.

5. The filtrate was given a trial in an epidemic of meningitis to determine its value as a skin testing and immunizing substance.

6. A new approach as to how to determine the level of immunity of a susceptible individual by skin testing with graduated dilutions of filtrate on an individual coming down with the disease and again after recovery is suggested as a possible method of determining the skin test unit dose.

(*a*) The amount of filtrate necessary to change the skin test from positive to negative, in dilutions shown in table 7, should be the amount necessary to immunize the individual.

(*b*) The skin test reaction could be a very valuable guide in the treatment of the individual.

7. The filtrate was used in a dilution of 1:100 as a skin testing substance on two and four week convalescents and gave consistently negative tests.

8. Skin testing on sensitive and susceptible individuals is the only available means at the present time of determining the toxicity of the exotoxin. Although the laboratory animals do react, the effects are not sufficiently consistent to titrate the potency of the product.

9. A 1:100 dilution of a filtrate produced from types 1, 2, 3 and 4 meningococcus was used to make skin tests of 2,000 newly enrolled CCC members; 37 per cent gave a skin reaction of one plus or greater.

10. Although the filtrate that was used in the Tarkio epidemic did not appear as stable as the one we are developing at the present time, the skin test there indicates a trend from positive to negative.

11. A filtrate aged 9 months in a refrigerator held at 50 C. reacts on 10 per cent less of the same enrollees than one made nine months later.

12. An opportunity to observe the change in skin tests after subcutaneous inoculation with full strength filtrate, after an interval of four months, was offered at Camp Coffey and the trend was definitely from positive to negative.

13. Among 395 individuals receiving meningococcus filtrate subcutaneously, none have developed meningitis even though in the Tarkio epidemic four cases developed among those not immunized. Ten months has intervened since this immunization was first initiated.

(*a*) The filtrate has been used in three outbreaks not reported in this paper with the same results as described.

14. It is to be remembered that this is only a preliminary report and in order to prove the value of the meningococcus filtrate as a skin testing and immunizing agent it should be used in a large number of beginning epidemics and over a long period of time.

TABLE 15.—*Reactions from Active Immunization with Exotoxin*

Dose	Amount Full Strength Filtrate	Reactions
First	0.2 cc.	All 86 men had sore arms; 21 had mild systemic reactions (the presence of these was difficult to determine owing to the high percentage of upper respiratory diseases); 1 had a moderately severe reaction (headache, backache, malaise, clear discharge from nose)
Second	0.5 cc.	22 had local reactions; 18 had mild systemic; 6 had moderately severe; 2 had urticaria, mild, local near site of injection (no increase on third dose for moderately severe or urticaria reactors)
Third	1.0 cc.	Local and mild systemic reactions similar to 2d dose; no severe reactors
Fourth	1.5 cc.	Only one moderately severe reactor

Station Hospital.

TRICHOMONAS VAGINALIS INFESTATION IN THE MALE

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Since Donne's [1] description of the parasite Trichomonas vaginalis in 1836, the reports of numerous observers have emphasized its very frequent occurrence in women; in fact, a clinical entity known as trichomonas vaginitis is known to every physician. Furthermore, Trichomonas vaginalis was reported as a cause of infection in the renal pelvis by Lewis and Carroll [2] and later by Ayer and Neil.[3]

Cystoscopic bladder manifestations in women suffering with trichomonas infestation have been observed by Visher [4] and others. I myself have observed two instances. During cystoscopy in an unmarried woman, aged 22, it was noted that the bladder neck, trigon and lower half of the bladder were diffusely reddened. Though Trichomonas vaginalis was found in the urine and vaginal secretion, the presence of a rather severe interstitial cystitis (Hunner's ulcer) precluded any accurate elucidation of clinical symptoms. In the second patient, a married woman, aged 22, previous cystoscopy for ureteral stricture revealed a normal bladder. A second cystoscopy some three weeks later revealed an intense bright redness of the entire bladder mucosa. Individual vessel markings were lost. The right and left ureteral orifices, other than being included in the generalized redness, were normal. No edema was present. Right and left ureteral catheter specimens were clear and showed microscopically only an occasional red blood cell. Cultures of ureteral specimens showed no growth. The bladder urine was clear and was acid in reaction, and tests for both albumin and sugar were negative. Microscopic examination of the uncentrifugated specimen revealed an occasional epithelial, pus and red blood cell, and motile trichomonads. Trichomonas vaginalis was of course present in the vaginal secretion. Careful questioning of the patient failed to reveal any symptoms referable to the urinary tract. Cystoscopy two weeks later revealed a normal bladder. Trichomonas vaginalis was absent in the urine but present in the vaginal secretion. Urinary symptoms such as diuria, nocturia, or both, with some burning on urination may have been present, however.

The discovery by Miura [5] in 1893 of Trichomonas vaginalis in the voided urine of a man aged 52 revealed its occurrence in the male. Miura's patient did not complain of urinary symptoms. Marchand [6] reported an instance of Trichomonas in the male in 1894, and Dock [7] also reported its occurrence before the turn of the century. Since then, rather sporadic reports have found their way into the literature. In 1924 Katsunuma [8] reported Trichomonas vaginalis in the urine of a 3 year old boy; the source of the parasite was later found in the preputial sac, where it caused a redness and edema.

Čapek [9] in 1927 first reported trichomonas urethritis in the male but also observed microscopic and macroscopic blood in the urine. Grimm's masterly description in his report of five cases of trichomonas urethritis leaves little to the imagination.

Riba and Perry [10] reported two instances of trichomonas infestation of the prostate in 1929, antedating May [11] by almost two years. May did, however, prove through cystoscopy that the bladder need not be involved in trichomonas infestation of the prostate.

The only instance in which involvement of the upper urinary tract might be suspected in the male was reported by Rosenthal [12] in 1930. A widower, aged 72, developed symptoms of infection of the urinary tract five weeks after an operation for removal of gallstones. Trichomonas vaginalis was found in the urine and in one instance a renal cast containing a flagellate form was seen. Rosenthal, however, attributes the symptoms to the presence of Bacillus coli-communis.

Concerning the frequency of Trichomonas vaginalis in men, accurate statistics are not available. Indeed, the literature reveals a number of opinions of wide variation, which, however, on closer scrutiny merely enlarge our knowledge concerning Trichomonas vaginalis in the male.

On the one hand, 32,000 examinations of prostatic secretion in the Mayo Clinic [13] revealed the presence of Trichomonas vaginalis sixteen times. Pelouze [14] reported eight instances of prostatic infestation in four years. Lately Allen [15] has reported six instances of prostatic infestation found by examining the husbands of patients having trichomonas vaginitis. On the other hand, Grimm [16] was able to demonstrate Trichomonas vaginalis five times in a series of twenty-five cases of nonspecific urethritis. In our own series we were able to demonstrate Trichomonas vaginalis five times in forty instances of so-called nonspecific urethritis.

Finally Drummond [17] reported four instances of prostatic infestation with Trichomonas vaginalis found by examining the prostatic secretion of five men whose wives were suffering from trichomonas vaginitis. Drummond reached the conclusion that "the male infested with Trichomonas usually presents no symptoms or physical sign" and that "it has been confused with other nonspecific discharges of the male urethra."

During the past eighteen months we have observed the occurrence of Trichomonas vaginalis in the male five times in forty instances of so-called nonspecific urethritis. The process was one of elimination:

CASE 1.—A man, aged 23, had been married one year when he was seen, Dec. 27, 1934. He had had gonorrhea two and one-half years before. He had had no extramarital relations. He complained of a slight watery discharge, which had been present intermittently for six months. There were no other complaints. The family physician had been treating the patient for gonorrhea.

Examination revealed a very slight grayish watery discharge present at the meatus. Gram's stain of a smear showed only

1. Donne, cited by Dock.[7]
2. Lewis, Bransford, and Carroll, Grayson: A Case of Trichomonas Vaginalis: Infection of the Kidney Pelvis, J. Urol. **19**: 337 (March) 1928.
3. Ayer, E. W., and Neil, J. M.: Protozoa in the Urinary Tract, J. A. M. A. **94**: 1489-1490 (May 10) 1930.
4. Visher, J. W.: Vesical Infection with Trichomonas Vaginalis, J. A. M. A. **92**: 2098-2099 (June 22) 1929.
5. Miura, K.: Trichomonas vaginalis im frischgelassen Urine eines Mannes, Centralbl. f. Bakt. **16**: 67-74 (July 9) 1894.
6. Marchand, F.: Ueber das Vorkommen von Trichomonas im Harne eines Mannes, nebst Bemerkungen über Trichomonas vaginalis, Centralbl. f. Bakt. **15**: 709-720, 1894.
7. Dock, George: Trichomonas as a Parasite in Man, Am. J. M. Sc. **111**: 4 (Jan.) 1896.
8. Katsunuma, cited by Grimm.[16]
9. Čapek, A., cited by Grimm.[16]
10. Riba, L. W., and Perry, Eugene: Trichomonas Prostatovesiculitis, J. Urol. **22**: 563-571 (Nov.) 1929.
11. May, Ferdinand: Prostatic Verursacht durch Trichomonas vaginalis-Infektion, Ztschr. f. Urol. Band **26**: 407, 1932.
12. Rosenthal, D. B.: Urinary Infection with Trichomonas Vaginalis in the Male, M. J. Australia **1**: 782 (June 27) 1931.
13. Stuhler, L. G.: Trichomonas Vaginalis Infestation of the Prostate Gland, Proc. Staff Meet., Mayo Clin. **8**: 221-222 (April 12) 1933.
14. Pelouze, P. S.: Trichomonas Infestation of the Prostate, Urologists' Correspondence Club, March 5, 1934, p. 3.
15. Allen, Edward; Jensen, L. B., and Wood, I. H.: Clinical and Bacteriologic Observations in Trichomonas Vaginitis, Am. J. Obst. & Gynec. **30**: 565-570 (Oct.) 1935.
16. Grimm, O.: Die Trichomonas vaginalis Urethritis beim Manne, Dermat. Ztschr. **59**: 314-319 (Oct.) 1930.
17. Drummond, A. C.: Trichomonas Infestation of the Prostate Gland, Am. J. Surg. **31**: 98-103 (Jan.) 1936.

a few gram-positive cocci and a few pus cells. Under ordinary urethral irrigations and prostatic massage, the urethral discharge disappeared. Though Trichomonas was suspected it was not found, either in the urine or in the prostatic secretion.

The urethral discharge reappeared in February 1935, and the manifestations were the same as those just described. The patient was told to have his wife examined by a gynecologist for trichomonas vaginitis, but this he refused to have done. After a few weeks of routine treatment the discharge again disappeared.

In June 1935 the discharge again reappeared, and Trichomonas vaginalis was found in the prostatic secretion and an occasional parasite was present in the urine. A few days later the wife was examined by a gynecologist and Trichomonas vaginalis was found to be present in the vaginal secretion in large numbers.

CASE 2.—A married man, aged 34, was referred by a gynecologist, June 13, 1935, because he had a urethral discharge and his wife was suffering from trichomonas vaginitis. The history, except that the patient had had gonorrhea in 1931 with no complications, was negative. The patient admitted extramarital exposure eighteen days before. The patient's only complaint was the presence of a slight urethral discharge for the last two days.

Examination revealed a scant grayish watery urethral discharge when the urethra was stripped. Stained smears were negative for gonococci, and only a few pus cells were seen. Irrigation of the anterior urethra was done with warm physiologic solution of sodium chloride in a small bulb syringe, and immediate examination of the contents as a warm wet specimen was negative for Trichomonas. Both glasses of urine were clear, but there were some large shreds in the first glass. The urine was acid. The tests for albumin and sugar were negative, and microscopically a few pus cells were seen, but no trichomonads were present. The patient was placed on irrigations.

June 17, rectal digital palpation revealed a slightly enlarged prostate, the right upper pole of which was firmer than normal. The seminal vesicles were not palpable. Immediate examination of a wet specimen of prostatic secretion mixed with physiologic solution of sodium chloride revealed numerous pus cells and some few motile trichomonads. Gram's stain showed some gram-positive cocci and numerous pus cells. The prostate was again massaged five days later and the patient was not seen again for some time.

July 10 the patient had an attack of acute prostatitis with frequency, dysuria and terminal hematuria, for which he was treated palliatively at home.

August 24 the prostatic secretion was again examined, and the specimen was negative for Trichomonas vaginalis. Further treatment for chronic prostatitis was carried out. Some half dozen prostatic fluid examinations have since been negative for Trichomonas.

CASE 3.—A man, aged 19, single, seen Nov. 30, 1935, complained of a urethral discharge, burning in the urethra at the end of urination, and frequency. He stated that he had had no venereal disease. The patient admitted a dozen exposures to the same girl, the last exposure having been Sept. 14, 1935. The symptoms began about October 1 and consisted of hourly frequency, burning on urination and a yellowish discharge, which stained the clothing. Gonorrhea was diagnosed by the first physician consulted, but no treatment was given. The patient later came to Portland for further examination.

Examination showed a small amount of thin watery discharge at the external meatus. Gram's stain of a smear showed a number of gram-positive cocci and short gram-negative bacilli. Numerous pus cells were present. As there was not enough discharge for examination of a wet specimen, the anterior urethra was irrigated as previously described and some active trichomonads could be made out. Both glasses of urine were cloudy and acid in reaction, and tests revealed the presence of some albumin but no sugar. Microscopic examination showed numerous pus cells, singly and in clumps, and a few motile trichomonads. Urine cultures showed Staphylococcus albus and Bacillus coli. As the condition was somewhat acute the prostate was not examined, but there is no doubt as to its involvement. The patient is still undergoing treatment.

The girl in this instance has been treated for some time and is still being treated for trichomonas vaginitis.

CASE 4.—A man, aged 26, had been married two and one-half years when seen, Dec. 2, 1935. The patient has had a urethral discharge off and on for the last two years. He also complains of a slight burning on urination and an occasional dull aching pain situated in the right lower part of the back. The patient was treated by his family doctor in January 1934 and also in the summer of 1935 by weekly prostatic massage. He was told he had a nonspecific urethritis.

Examination revealed a very slight (practically absent) grayish watery discharge at the external meatus. Irrigation of the urethra revealed no trichomonads. The urine was acid, and tests for both albumin and sugar were negative. Microscopically only a few pus cells were seen. A few days later a few trichomonads were seen in the urine, the first glass being used. Rectal examination revealed a small prostate somewhat firmer than normal at the right base. The normal markings were preserved and the seminal vesicles were not felt. After a few examinations Trichomonas vaginalis was found in the prostatic fluid.

After the patient was found to harbor Trichomonas vaginalis, his wife was sent to a gynecologist, who found a rather severe trichomonas vaginitis, the discharge of which contained many active trichomonads.

CASE 5.—A man, aged 33, had been married one day when seen, Dec. 14, 1935. He complained only of a slight urethral discharge, since exposure to a woman other than his wife. He stated that he was told afterward by the woman that she had a disease but could not "understand the name." This exposure took place in August 1935. The patient also had sex relations with his wife the day before.

The history, other than gonorrhea at the age of 16 and again in 1934, was negative. The patient's complaints were limited to the slight discharge.

Examination revealed a very slight grayish watery discharge in the external meatus. There was not enough discharge for a wet specimen, so the anterior urethra was irrigated with physiologic solution of sodium chloride as previously described. Examination of this fluid revealed a few motile trichomonads. The urine was acid and the test for albumin showed a faint trace, but the test for sugar was negative. Microscopic examination showed an occasional pus cell and an occasional red blood cell. After several examinations, Trichomonas vaginalis was found in the urine.

Rectal examination revealed a small prostate with no abnormalities. The seminal vesicles were not felt. Two different specimens from the prostate failed to reveal Trichomonas vaginalis. The patient left in a few days for his home in Idaho, so further examination was impossible.

It was of course impossible to examine the first woman, but the wife was sent to a gynecologist, who found that she had a trichomonas vaginitis of some duration. The history might lead one to believe that the first woman had a trichomonas infestation. However, if one disregarded the first instance, assuming that the patient's discharge was due to some other organism, it might then be assumed that the trichomonads found in the anterior urethra were due to the first marital exposure of the preceding day and that the changes in the anterior urethra and the first glass of urine and not in the prostatic fluid could be explained on a time basis. I am of the opinion, however, that the parasite was harbored also by the first woman and that further examination would have revealed its presence in the prostate.

I have presented five instances of Trichomonas vaginalis infestation in the male. Each patient complained of a slight watery discharge. I do not maintain that Trichomonas is the cause of the discharge, for indeed even in this small group there is evidence that the parasite is not a pus producer per se and that the presence of other organisms increases the discharge, as is shown in case 3 and again in case 2, in which the discharge continued, owing to chronic prostatitis, after examination had shown that the parasite had disappeared from the prostate. I do believe, however, that Trichomonas vaginalis is present in a fair percentage of the discharges of so-called nonspecific urethritis, and for this reason should be looked for as a routine.

Treatment of Trichomonas infestation in the male may be approached from the standpoint of prophylaxis against reinfestation of the female. That Trichomonas vaginalis may be present in the prostate of the husband and serve as a source of reinfestation of the wife is only too apparent. That the male may not be aware of his infectiousness is aptly illustrated by the fact that in the first instance on record, reported by Miura, there were no urinary symptoms. Later Allen's [15] routine observations and the instances disclosed by Drummond [17] are ample evidence of this. In my own cases the discovery of Trichomonas vaginalis in males who complained only of a slight urethral discharge, some being intermittent in character and easily overlooked except by the most fastidious, together with the added important factor of finding the parasite in the female in every instance in which it was previously diagnosed in the male is most convincing. Finally, the examination of the lower part of the urinary tract in women should be remembered, even though symptoms are absent, when one is treating Trichomonas vaginalis in the female.

Therapy in the male depends on two factors, the eradication of the source of the infestation that is in the female and the location of the site of the infestation. Abstinence from sexual relations should of course be stressed during treatment.

Medical literature, especially the German, repeatedly describes a Trichomonas urethritis of long standing in which the prostate is not involved, and the careful observations given seem to substantiate this. It would seem plausible, however, and my own observations and those of others would lead one to believe, that if the infestation is one of long standing the prostate is the site of the infestation.

For urethral irrigations, Grimm,[16] Balkow [18] and others recommend mercuric oxycyanide, 1:4,000 to 1:2,000. Riba recommends acriflavine hydrochloride, to which I am more favorably inclined.

Pelouze [19] recommends prostatic diathermy, after which 1:3,000 acriflavine solution is injected into the bladder with a bulb syringe; also some of the solution is held in the anterior urethra for ten minutes. Pelouze states that no trichomonads have been found after the fourth treatment on alternate days, and in only one case was it present after the second diathermy. He insists, however, on six consecutive treatments and two more a week later.

Drummond [17] advocates irrigating the posterior urethra with 1:8,000 metaphen and the injection of 3 cc. of a colloidal silver preparation into the lateral lobes of the prostate, through a McCarthy panendoscope and specially devised intraprostatic needle.

For a better understanding of Trichomonas infestation, it may be said that the cycle of infestation is ostensibly different than in gonorrheal infection. In gonorrheal infection the female is infected by an infected male. She then infects other males. With Trichomonas no such condition exists. Here one is dealing with an infestation in which the exact mode of infestation is not clear but the incidence of which in both the married and the unmarried woman is comparatively high and not dependent to any large extent on sex relation for primary infestation. However, through sex relationships it may be transferred to a less fertile field in the lower urinary tract of the male.

Though the incidence of infestation in males is higher than statistics would lead one to believe, the difference of incidence between sexes is easily accounted for; anatomically by the close proximity of the rectum and vagina in the female and the less fertile field offered by the longer tubed male urethra; physiologically by the presence of the urinary stream in the male; biologically by the size and delicateness of the organism; pathologically by the comparative superficiality of the disease process, and finally by the fact that its widespread presence in the female is not dependent on sex relationships but possibly occurs by contamination from the intestinal tract.

233 Medical Arts Building.

18. Balkow: Zur Bedeutung der Trichomonas vaginalis als Erreger einer Kolpitis purulenta und der "unspezifischen" Urethritis beim Manne, München. med. Wchnschr. **82**: 331-332 (Feb. 28) 1935.

19. Pelouze, P. S.: Personal communication to the author.

FLUID POSTOPERATIVELY

A STATISTICAL STUDY

BERNARD FANTUS, M.D.

CHICAGO

Since physicians have learned to give fluid intravenously without immediate ill effects; streams of fluid, literally, have been pumped into the veins of defenseless patients with very little actual knowledge of what becomes of it or of them. A recent article by Cutter [1] shows that in this country the choice of the kind of fluid to be used is largely sectional and therefore probably irrational.

It is barely two years since the Cook County Hospital established its "Solutions Laboratory." Prior to this the "Drug Room" prepared these solutions with commercial distilled water, and the incidence of "reactions" was so high that the staff doctors were afraid to order them so that but little of these solutions was used.

Now there are no reactions due to the solutions, chiefly owing to the fact that water that has just been distilled—but only once distilled—is being employed, and that sterilization follows immediately on preparation of the solution. The Solutions Laboratory now dispenses over 7,000 flasks a month, and the consumption is still going up. Hypodermoclysis and rectal administration of fluid have become practically obsolete. Whether properly so demands investigation.

In an endeavor to determine what becomes of these solutions and to what degree patients are benefited or possibly harmed by them, studies have been going on—since the inauguration of this service—to secure data that might be of value in drawing conclusions. The present report is given at this time, even though it raises more questions than it answers, with the hope that it may inspire similar studies elsewhere; for it is necessary that some of these questions be answered promptly.

THE QUANTITY

The amount of solution introduced has varied from 2,000 to 7,000 cc. In chart 1 the quantities are shown in the abscissa, while the height of the column or the figure on top of it indicates the number of patients in each group and the black portion of each the number that died. The curve in the graph indicates the percentage of deaths in each group.

This and the other graphs give the gross statistics, including all kinds of seriously sick patients, as secured

From the Cook County Hospital.

Essential help was given in this study by Stella F. Walker, medical statistician of the Cook County Hospital, by the registered nurse Cora Oesterblom, and by the technician Ann Kane.

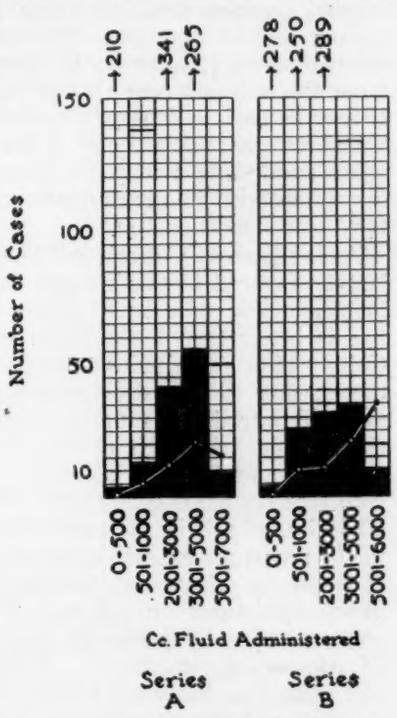
1. Cutter, R. K.: The Use of Large Volume Intravenous Injections, J. A. M. A. **106**: 1250-1252 (April 11) 1936.

from the "Recovery Ward," to which all these are sent after operation for a day's special care. It will be noted that the average mortality rate of all these patients is about 10 per cent. The total postoperative mortality at this institution is, of course, much less than this, as only the sickest patients get "Recovery Ward" service.

The most charitabe interpretation one can give to this graph is that "the sicker the patient, the more fluid he gets." The other possibility is that the more fluid the patient gets the worse are his chances of recovery. The truth probably lies somewhere between the two extremes.

In these graphs two series (A and B) of more than one thousand cases each are shown. Series A was studied during approximately the first year and series B during the second year of this study.

That there is a danger of overwhelming a patient's system with fluid becomes evident when one contemplates the table and chart 2. The table gives the percentage of fluid eliminated in the urine in relation to the quantity of fluid ingested during the first twenty-four hours postoperatively. It will be seen that there is a progressive decrease in the percentage of fluid eliminated as the quantity of fluid administered increases.



In all the graphs the black columns indicate the actual number of deaths in each group.

Chart 1.—Mortality rate in relation to the quantity of fluid administered. The sicker the patient, the more fluid he gets. Series A: 1,018 cases, 120 deaths. Series B: 1,016 cases, 108 deaths. Curve shows percentage of deaths in each group.

Chart 2 shows that the mortality rate is the higher, the lower the percentage of fluid eliminated in relation to that injected.

From it one can see that the smaller the percentage of the injected fluid that is eliminated, the greater the mortality rate. For patients who eliminated less than 10 per cent, the mortality rate has been 23.4 and 19 per cent respectively in the two series, about twice the average mortality rate, and from there on it declines in an almost straight line. Why this should be so requires further study. There are at least three possibilities:

1. The very sick patient cannot eliminate fluid freely and the sicker he is the less he eliminates. The retained fluid may be harmful.

2. The patients may have lost so much fluid during or after the operation that they had to retain most of it and died in spite of liberal intake.

3. The patients who died may have come to the operating room in so serious a condition of hypohydration that no amount of fluid could save them.

The question then is: Did the patients who died get too much fluid, not enough of it, or not nearly enough, or would they have died anyway owing to the hopelessness of their condition?

The answer to these questions can come only from a careful analysis of suitable statistics. These are not at present available. It is only on the basis of such analysis that it will be possible to decide how much fluid patients should receive postoperatively.

This much can be said from the data available: that the patients of the first group, those who eliminated less than 10 per cent of the fluid injected and who died, had received fairly liberal amounts of it, as shown by the table.

Percentage of Fluid Elimination as Related to Quantity of Fluid Ingested During the First Twenty-Four Hours Postoperatively

Cc. of Fluid Administered	No. of Cases	Lowest, %	Highest, %	Average, %
0- 500	54	50	575	191.4
501-2,000	52	22	154.5	42.66
2,001-3,000	127	0	80	19.51
3,001-5,000	82	0	70	16.75
5,001-	21	2.9	34.3	14.28

There is a progressive decrease in the percentage of elimination as the quantity of fluid administered increases.

As these quantities of fluid did not save the patients' lives, the question is, Might not a more moderate amount of fluid injected have put some of these patients into the second group; namely, those who eliminated 11 to 25 per cent of the injected fluid and whose gross mortality was only 11 per cent? It should be noted that the patients who received less than 500 cc. of fluid lived. This was probably due to the fact that they were not very sick and that they had been given the fluid by mouth. Otherwise the doctor, in his anxiety, would have "pushed fluids" intravenously.

It should be pointed out here that, contrary to what one might expect, the intravenous injection of fluid is much less diuretic than is oral ingestion, for it is administration of fluid by mouth that is largely responsible for the cases of more than 100 per cent elimination of fluid shown in chart 2. All the patients with huge elimination (from 201 to 1,000 per cent) had fluid administered to them by mouth. All recovered, obviously because none of them were sick enough to demand parenteral fluid administration. That fluid absorbed through the alimentary tract has a diuretic quality has been shown previously (Starkenstein,[2] Dresel and Leitner [3]).

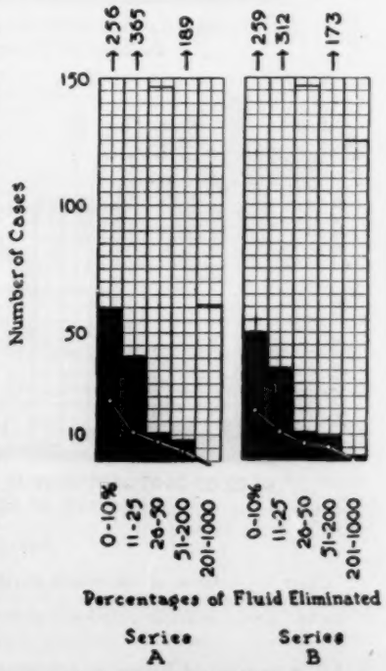


Chart 2.—Mortality rate in relation to the percentage of fluid elimination to postoperative fluid intake. The sicker the patient, the less of the injected fluid does he eliminate. Series A: 1,018 cases, 120 deaths. Series B: 1,016 cases, 108 deaths. Curve shows percentage of deaths in each group.

2. Starkenstein, E.: Elimination of Water with Various Salt and H Ion Content, Klin. Wchnschr. **3**: 1274-1275 (July 8) 1924.

3. Dresel, Kurt, and Leitner, Zoltan: Zur Physiologie des Wasserhaushalts. Veränderungen Flüssigkeitsaufnahme und ihre Beziehungen zur Milzfunktion und zur Diurese, Klin. Wchnschr. **7**: 1362-1365 (July 15) 1928.

CHLORIDE

The relation of the death rate to postoperative chloride elimination is shown in chart 3, which again gives the two series of about 1,000 cases each of the first and second year's study respectively. Series A shows that the group of patients with less than 0.1 per cent of chloride in the urine that is passed after operation had a mortality rate of 75 per cent and that the mortality rate line then descends down to the lowest point in the 0.6 and 0.8 per cent groups respectively. From these points a tendency to a rise manifests itself.

It should be stated here that in the A series 5 per cent dextrose solution was the one most commonly used.

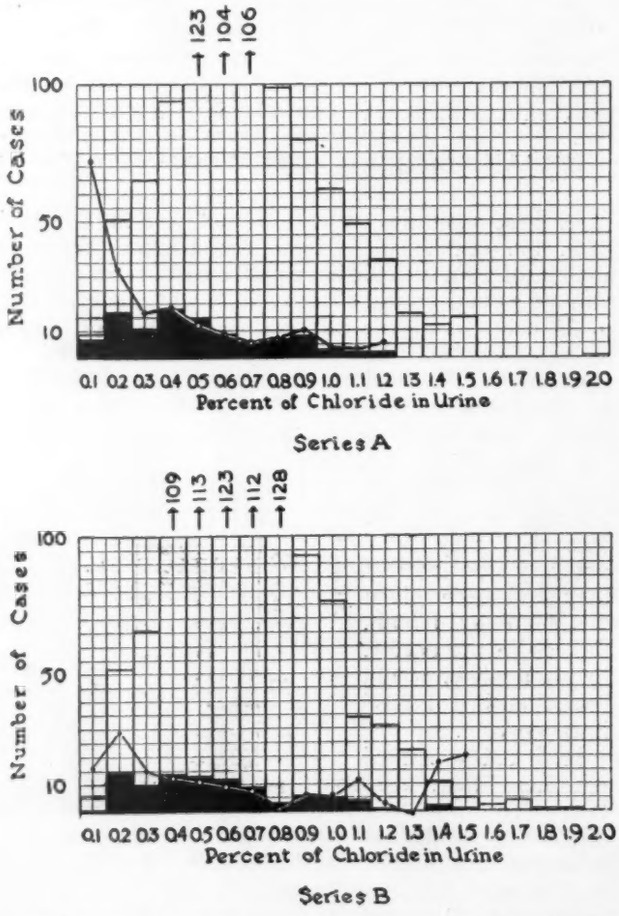


Chart 3.—Relation of the mortality rate to postoperative chloride elimination. Series A: 923 cases, 105 deaths. Series B: 989 cases, 99 deaths. Curve indicates percentage of deaths in each group.

As it appeared from a study of series A that some of these patients might have died from salt starvation, the more or less routine use of a mixture of equal parts of physiologic solution of sodium chloride and 5 per cent dextrose was employed during the time the statistics were gathered for series B. This probably is responsible for the fact that the first group, the one passing less than 0.1 per cent of chloride in the urine, has almost disappeared. The relatively low mortality rate in this group in series B may be accidental and due to the small number of cases, for it will be noted that the height of the death rate line picks up and is 30 per cent in the second group, with elimination of less than 0.2 per cent of chloride in the urine, and that from there on the two graphs are similar to each other, with the exception that the rise in mortality rate in the range of the high percentages of chloride elimination manifests itself more definitely. Apparently patients passing excessively concentrated urine also have a high mortality rate.

The high death rate in the low salt elimination groups may be due either to the patients who died not having been given enough salt, or not early enough, or that certain moribund patients are unable to eliminate salt in the urine.

The solution now used almost as a routine in this hospital contains 0.425 per cent sodium chloride and 2.5 per cent of dextrose. The total mortality rate of the two series (A and B) of chart 3 does not seem to favor this solution over that of pure dextrose solution. It may be that, as is shown by series B, lives that may have been saved at one end of the line were lost at the other end. There may be danger of overburdening the system with an excess of salt, as there also is danger from salt starvation.

As is shown by Cutter's article, the solution at present largely favored in this country is 5 per cent dextrose in physiologic solution of sodium chloride. Whether this is better than the solution employed at the Cook County Hospital remains to be demonstrated. A priori, there seems to be a decided possibility that such solution may introduce an unphysiologic amount of salt into the system. As each thousand cubic centimeters of fluid contains 8.5 Gm. of sodium chloride, the patient who receives 5,000 cc. of such solution would be given 42.5 Gm. of salt in the twenty-four hours! This certainly seems an excessive ingestion for most patients. It is, on the other hand, possible that, in certain emergency operations on salt-starved patients, hypertonic solutions of sodium chloride, e. g., 3 per cent, might be of life-saving importance. Higher concentrations of salt should probably not be employed, because of their damaging effect on the intima of the vein, which favors the production of thrombosis.

SUGAR

The reason for the routine use of dextrose can probably be given on the ground of its importance in the prevention of starvation ketosis, for the postoperative patient is a starved patient. Common sense should dictate not to force more into the system than can be taken care of. Therefore, the moment the patient, receiving dextrose infusion, passes sugar in the urine it is obvious that his sugar tolerance has been overwhelmed. The sugar thus wasted gives no concern because sugar is cheap; but along with it there is wasted a considerable amount of the fluid that has been introduced with it, as each gram of sugar eliminated takes 20 or more cubic centimeters of fluid with it.

No one seems to know what the average sugar tolerance of the postoperative patient is. It is probably a highly individual matter. It is certainly not the average sugar tolerance of the normal individual, as is shown by chart 4, from which known cases of diabetes have been excluded.

It will be seen (chart 4, part B, solid line) that the more sugar that is injected the greater the percentage of sugar-positive urines. It will be noted from this line that about one third of all patients given between 100 and 149 Gm. of dextrose in the twenty-four hours eliminated sugar in the urine. As this solution is injected in a routine way by means of drip phleboclysis and we are dealing with adult patients, it is obviously less than the accepted sugar tolerance for normal individuals, which on the basis of the work of Woodyatt,

Sansum and Wilder [4] has been assumed to be above 0.8 Gm. and below 0.9 Gm. per kilogram of body weight hourly. Were this true, a person weighing 70 Kg. should tolerate 63 Gm. of dextrose per hour.

The group given between 150 and 199 Gm. in the twenty-four hours had glycosuria in more than one third of all cases, and in the group given above 200 Gm. one half of all patients passed sugar. Chart 4 shows that the total mortality rate increases suddenly when the intake of 100 Gm. is exceeded.

That this is not due to the loss of sugar in the urine is shown by part B, chart 4, broken line, which shows that the patients whose urine was sugar positive curiously enough had a lower mortality rate in the highest brackets than those who were sugar negative.

Part C, chart 4, broken line, which indicates the percentage of deaths in those whose urines were sugar negative, rising as it does progressively as the quantity of sugar given increases, points to one of two possibilities. Either this is due to the fact, first established in this study, that "the sicker the patient, the more fluid he gets" or else there is intrinsic harm in giving very sick patients a large quantity of sugar. Even if the first-mentioned proposition is true it can be concluded that the large ingestion of sugar did not do them any good, for all of the patients being discussed died.

RECOMMENDATIONS

Excepting in emergency, hypohydrated and salt-starved patients must not be sent to the operating room. If it were a standing order that no patient should be sent to the operating room unless he had passed at least 1,500 cc. of urine in the preceding twenty-four hours and this urine contained at least 0.5 per cent of chloride, this requirement would be automatically met.

Patients who cannot be prepared in this way for the operative ordeal should receive special care during, as well as after, operation to minimize the disadvantage from which they are suffering.

Patients who have undergone serious operations should have a salt and fluid balance sheet established for them in which the quantities of fluid administered and of urine eliminated are carefully recorded and a balance is struck at least every twelve hours to warn the attending physician of approaching danger.

The salt elimination in the urine should be estimated postoperatively and we have a very simple, roughly quantitative test for this purpose that can be carried out by any trained nurse or other intelligent person:

SIMPLE QUANTITATIVE CLINICAL TEST FOR CHLORIDE IN URINE

Place 10 drops of urine in a test tube. Add 1 drop of a 1 to 5 potassium chromate solution. The fluid will now assume a somewhat distinctly yellow color. Add drop by drop, with the same dropper or one of the same caliber, a 2.9 per cent silver nitrate solution until a permanent and distinct color change to red-brown occurs (resulting from the formation of silver chromate). The number of drops required to produce the change of color expresses in grams the content of chloride per liter of urine.

Sugar should also be tested for in the urine not only preoperatively but postoperatively as well, and the qualitative test probably suffices. When sugar is found to be present in the urine of a patient who is given dextrose, it is an indication that the patient is receiving more dextrose than he can take care of. If the patient is receiving large quantities of dextrose, the obvious indication is to reduce the intake. If his intake has not been excessive, the administration of insulin may possibly be life saving, for some of these patients may have been rendered temporarily diabetic.

Such studies as these must be carried on extensively to answer the various questions raised as well as others that have not been touched on, e. g., that of alkali balance, before we may consider ourselves able to secure the maximum benefit with the minimum harm from this relatively new therapeutic measure. One thing is certain: less routinism and more individualization is desirable. Even if subsequent studies show that the mortality rate statistics were due to the patients' condition rather than to the use or nonuse of solutions, the data given are of value from a prognosis standpoint.

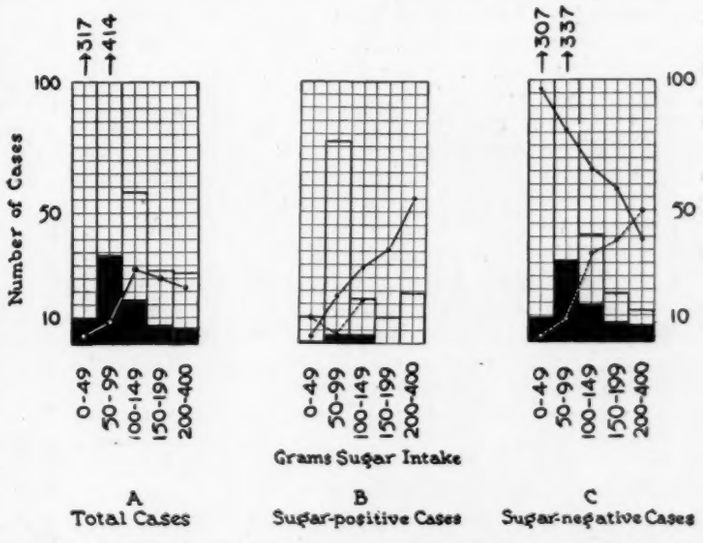


Chart 4.—Relation of the mortality rate to sugar intake and elimination. The more sugar the patients get and the higher the mortality rate, the more of them eliminate sugar in the urine. Part A. Cases tested for sugar, 844; deaths, 74. Curve indicates percentage of deaths in each group. Part B. Sugar-positive cases, 129; deaths, 7. Solid line indicates percentage of sugar-positive cases in the entire group of cases (844). Broken line indicates percentage of deaths in sugar-positive cases. Part C. Sugar-positive cases, 715; deaths, 67. Solid line indicates percentage of sugar-negative cases in the entire group of cases (844). Broken line indicates percentage of deaths in sugar-negative cases.

CONCLUSIONS

1. There is a tendency among surgeons to give the more fluid, the sicker the patient.

2. The smaller the percentage of the injected fluid that is eliminated, the greater the mortality rate.

3. Excessively low or excessively high salt elimination in the urine passed postoperatively carries with it a relatively high mortality rate.

4. The more dextrose that is injected, the greater the percentage of sugar-positive urines. The sugar tolerance of the patients after operation is less than that of the normal individual.

5. Proper preoperative preparation of the patient demands prevention of hypohydration as well as of salt starvation.

6. Postoperative use of fluids, to be properly individualized, demands observation of balance between fluid intake and fluid elimination, the determination of the percentage of chloride in the urine and the testing for the presence in it of sugar.

719 South Ashland Avenue.

4. Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, J. A. M. A. **65**: 2067-2070 (Dec. 11) 1915.

CALCIFICATION OF THE AORTIC VALVE

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WILLIAM W. BRYAN, M.D.
AND
EMORY D. HOLLAR, M.D.
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Calcification of the aortic valve is not a newly discovered condition, although one might gather from the recent literature that it was first described by Mönckeberg in 1904. William Cowper [1] in 1706, however, did not consider it unusual: he reported, in the case of "a spare man about 30, who languisht with an Ulcer in the Thigh, attended with a Caries, or Rottenness of that Bone at its Articulation with the Tibia and Patella, . . . The three Semilunary Valves of the Aorta . . . were somewhat thicker, and not so plyable as naturally . . . owing to a Bony or stony body." He described also the case of another man of about 40 whose "Left Ventricle was found larger than that of an ordinary Ox. . . . The Valves of the Great Artery . . . were Petrify'd, insomuch that they could not approach each other. . . . But an Orifice . . . remain'd always open by the Petrifactions." We have seen no more beautiful illustrations of the gross appearance of calcification of the aortic valve than those Cowper presented in 1706.

Excellent descriptions were also recorded by Vieussens [2] in 1715 and Morgagni [2] in 1769.

Osler [3] was quite familiar with calcification of the aortic valve at the time of the first edition of his textbook (1893). He recognized that it was much more common in men, usually elderly men. He proposed to divide the cases into "two groups, those with and those without arteriosclerosis." In discussing aortic incompetence, he said: "Long before any signs of failing compensation, pain may become a marked and troublesome feature. . . . Attacks of true angina pectoris are more frequent in this than in any other type of valvular disease. . . . Sudden death is frequent." In regard to aortic stenosis, he wrote: "The older the patient the more likely it is that the valves will be rigid and calcified. . . . Palpation reveals in many cases a thrill at the base of maximum force in the aortic region. With no other condition do we meet with thrills of greater intensity." In his fourth edition (1901) Osler was more specific about rheumatism: "The valvulitis of rheumatism, while less rarely aortic, is common enough in children, and insufficiency is caused by nodular excrescences at the margins or in the valves, which may ultimately be calcified." Further, he wrote, "in the endocarditic group in which the valve segments are united and often covered with calcified vegetations and excrescences, the systolic murmur is rough and may be accompanied by a thrill."

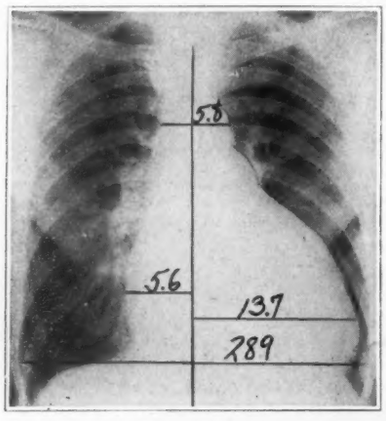

Fig. 1.—Teleoroentgenogram on Dec. 10, 1935. Tremendous hypertrophy of the left ventricle is shown. The transverse diameter of the heart is 19.3 cm.; the transverse diameter of the chest is 28.9 cm.

Interest in calcification of the aortic valve was revived five years ago with a report of forty-two cases observed at necropsy by Margolis, Ziellessen and Barnes.[4] This was quickly followed by a discussion of the clinical aspects by Christian,[5] who announced that Sosman had perfected a technic for demonstrating the calcification under the fluoroscope. Sosman and Wosika [6] two years later described the roentgenologic technic in detail and reported twelve cases diagnosed in life. In 1934 Sparks and Evans [7] added a case, as did Cooley.[8] Last year Willius and Camp [9] in a second paper from the Mayo Clinic announced the diagnosis during life of fifteen additional cases. It would appear that less than fifty cases of calcification of the aortic valve diagnosed during life have been reported in the literature and few have been followed to necropsy.

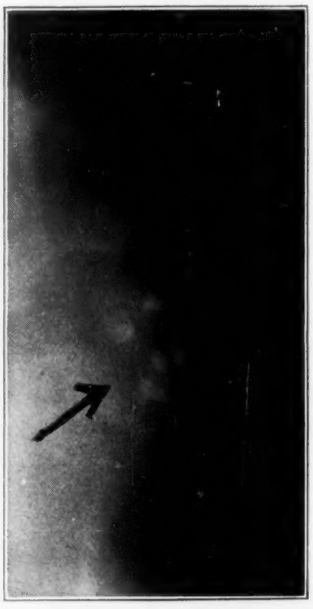

Fig. 2.—Multiple areas of calcification lying in the region of the aortic valve. Right anterior oblique view.

Boyd [10] has said: "The cusps of the aortic valve may be thickened, adherent to one another and calcified. When this is associated with a similar lesion in the mitral valve it is probable that the condition is secondary to rheumatic endocarditis. . . . Although it is not possible to be certain, it appears probable that the calcified nodular group is also due to a preceding rheumatic infection."

REPORT OF CASE

A well developed Negro, aged 36, came to the dispensary on April 8, 1935, complaining of shortness of breath and swelling of the legs for several months and of pain in the chest over a number of years. This pain would come on after exertion, particularly after coitus, or at night following a full day's work. It began just within the left nipple and radiated up across the sternum, often involving the left arm. Twice the pain had been so severe that he thought he was going to die. The pain, with palpitation and shortness of breath, lasted usually from one to three hours. These attacks had been growing more frequent and more severe, and since August 1934 there had been some edema and nocturnal cough.

From Emory University School of Medicine and the Grady Hospital.
Presented before the Fulton County Medical Society, April 2, 1936.

1. Cowper, William: Of Ossifications or Petrifactions in the Coats of Arteries, Particularly in the Valves of the Great Artery, Phil. Tr. Roy. Soc. (London) **24**: 197, 1706; republished in Major, R. H.: Classic Descriptions of Disease, Springfield, Ill.; Charles C. Thomas, 1932, p. 307.
2. These two papers can also be found in Major's book.
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Precordial bulging, a diffuse, heaving apical impulse and pulsation in the vessels of the neck were seen. Great cardiac hypertrophy and a systolic thrill at the base were also noted. The systolic blood pressure was 146, the diastolic 42; the pulse was 108. There was a loud, harsh systolic murmur in the second right interspace, transmitted across the sternum and up into the carotids. A diastolic murmur was loudest in the third interspace at the left border of the sternum. Slight pulsation was noted in the retinal arteries, which showed a minimal degree of sclerosis (Dr. J. R. Paulk).

The electrocardiogram showed a rate of 100, with a normal rhythm. The PR interval was 0.24 and the QRS 0.12. In lead 1 the T wave was inverted, and in leads 2 and 3 the S wave was deep.

A diagnosis of aortic incompetence was made and symptomatic treatment instituted.

In May the patient was admitted to a veterans' hospital in another city. He was discharged November 23 and three days later he returned to the Grady Hospital. He said that the edema had cleared up promptly but that the "misery" over the heart and the aching in the left arm had persisted. At this time a more detailed history was secured. He had enjoyed perfect health until 1918, when on account of pains in the ankles he

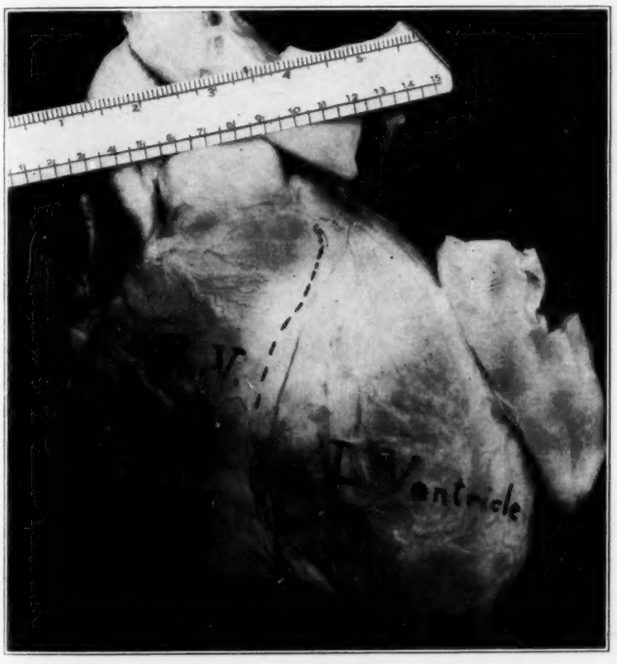

Fig. 3.—The heart. The left ventricle occupies about three fifths of the anterior surface of the heart. Along the outer border of the left ventricle, adherent pericardium has been turned back.

was admitted to an A. E. F. hospital. On dismissal after six weeks he was told that there was "a little something wrong" with his heart. While at work in 1923 he suddenly became dyspneic and experienced dull aching over the heart; that night he suffered severe pain near the apex with orthopnea lasting about an hour. He was then able to make a living without much difficulty for the next six years in spite of occasional heart attacks, many aches and pains in his joints and back, and repeated gonorrhea. In October 1929 he was admitted to the urologic service: a junior intern noted, "over the aortic region the second sound is not heard, but there is a continuous blow until the next systole." The blood pressure was 116/60. After this, cardiac symptoms varied: sometimes for six consecutive months they would be mild. He consulted other physicians and several times entered government hospitals before returning to the Grady Hospital in 1935. "Fifty Wassermanns" had been reported negative.

In view of the long history, the intense thrill and the harshness of the systolic murmur in the aortic area, one of us thought that calcification of the aortic valve was present and referred him for roentgenologic verification.

Roentgenoscopy according to Sosman's technic showed marked cardiac enlargement, particularly of the left ventricle: the left atrium was not enlarged. The beat was regular, vigorous and "rocking." Viewing the cardiac shadow in the region of the atrioventricular junction through a small aperture revealed several distinct areas of calcification. These lay high and just to the left of the border of the spine in the direct postero-anterior projection, in the middle third and just above

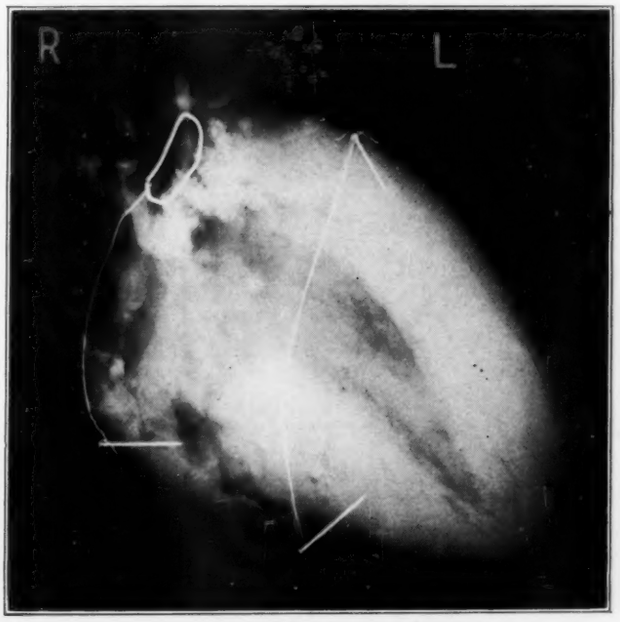

Fig. 4.—Roentgenographic appearance of the heart post mortem. A heavy wire ring is in the aorta just above the calcified valve. A fine wire separates the right border of the right ventricle on the anterior surface from the atrium. The second wire was accurately placed at the left border of the right ventricle on the anterior surface. Note the thickness of the walls of the left ventricle.

a line drawn through the cardiac shadow along the atrioventricular junction in the right anterior oblique, and high and anterior in the left anterior oblique. The components of calcification moved synchronously and quickly toward the shadow of the base with each systole and returned slowly

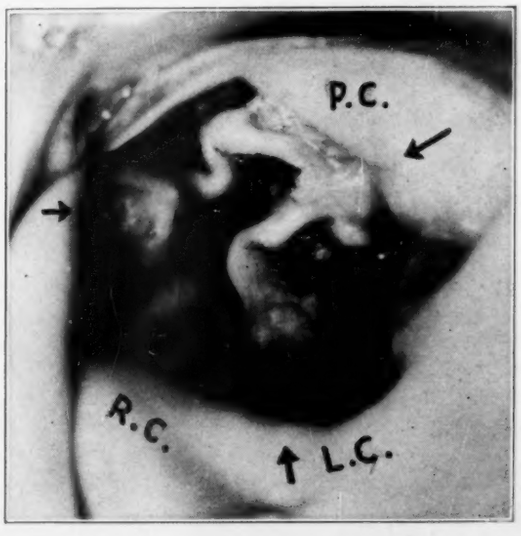

Fig. 5.—The aortic valve from above. Arrows point to the peaks of the commissures. The right cusp, the left cusp and the posterior cusp are indicated by *R. C.*, *L. C.* and *P. C.*, respectively. The edges of the right cusp are largely obscured and the cavity of each cusp is black with retained blood. Note that the aortic intima is smooth and glistening. Natural size.

toward the apex in diastole. The aorta was normal. The shadows were recorded in films exposed one-twentieth second (fig. 2). The diagnosis of calcification of all cusps of the aortic valve was made.

The patient was not willing to enter the hospital for intensive study until frightened by an anginal attack on Jan. 21, 1936. During the two weeks of hospitalization, systolic blood pressure

ranged from 120 to 180, and the diastolic from 40 to 60. A second electrocardiogram revealed that the PR interval had increased from 0.24 to 0.36 second. Other reports were without interest.

On the night of March 30, after working all day, he suddenly complained of excruciating precordial pain and shortness of breath. He was dead when his car reached the hospital.

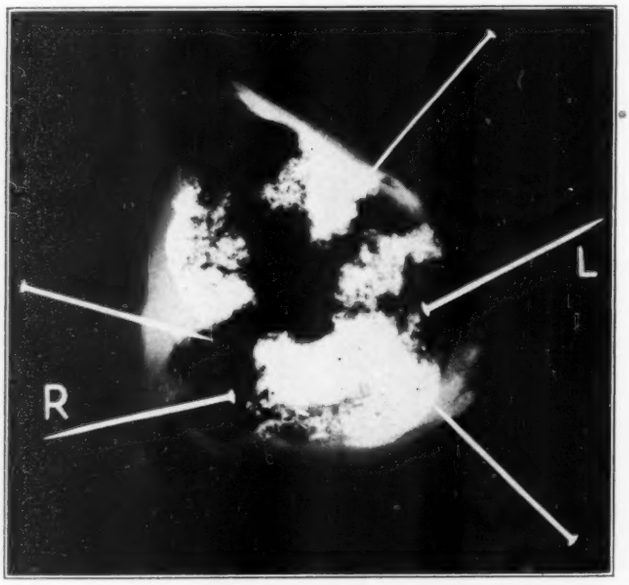

Fig. 6.—Axial roentgenogram of the excised aortic valve. Pins have been inserted to divide the cusps as in figure 5. The pin pointing to *R* lies in the right coronary artery; the pin pointing to *L* is in the left coronary artery, but its point should be 16 mm. lower to indicate direction of the artery. Natural size.

Necropsy was done after embalming. Except for evidence gross and microscopic of chronic passive congestion, interest was confined to the heart. The heart weighed 1,070 Gm. It measured 17.5 cm. from apex to base, 13.5 cm. across the base

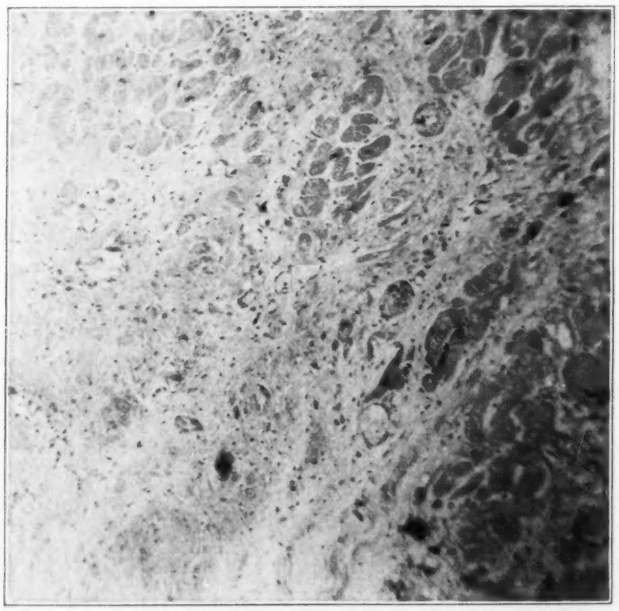

Fig. 7.—Myocardium under low power. Note the extensive fibrosis.

and 11 cm. through the base. The left ventricle occupied about three fifths of the anterior surface; the apex of the right ventricle did not come within 5 cm. of the apex of the heart. The greatest width of the right ventricle on the anterior surface was 6.5 cm. Just posterior to an artery on the border of the left ventricle, a branch of the anterior descending ramus of the left coronary, the pericardium was adherent for 5 cm. The atria were neither dilated nor hypertrophied, the wall of each averaging 4 mm. in thickness. The foramen ovale was patent, forming a slit of 8 mm. The normal tricuspid valve measured 12 cm. The cavity of the right ventricle was small: from the tricuspid ring to its apex measured but 7 cm. The conus arteriosus was prominent. The pulmonic valve was normal, its inner circumference measuring 9.4 cm.

The mitral ring measured 9 cm.: the valve was thickened and scarred but not calcified. From the ring to the apex of the cavity measured 11 cm. The wall of the left ventricle and the interventricular septum was from 2 to 3 cm. thick. The muscle was firm and there was irregular scarring throughout. The commissures between the aortic cusps were adherent and densely calcified (figs. 5 and 6). The free edges were rolled and thickened but even after embalming could be moved 1 or 2 mm. The coronary ostia were widely patent, but just distal to them there was sharp angulation of both arteries. The inner circumference of the right coronary 1 cm. from the aorta measured 13 mm. Just proximal to the bifurcation of the left coronary, its inner circumference also measured 13 mm. The branch adjoining the adherent pericardium was greatly nar-

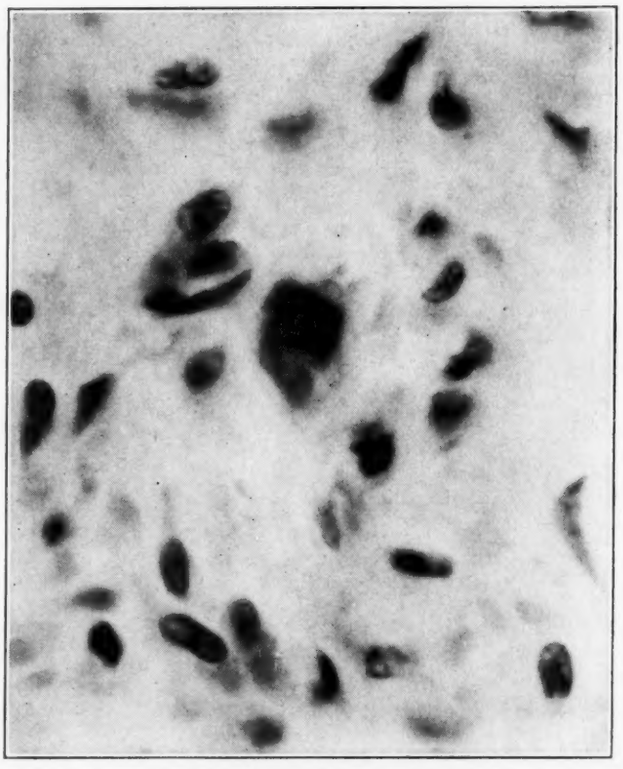

Fig. 8.—Appearance of an Aschoff nodule under high power.

rowed, if not occluded, but otherwise the coronary arteries showed no gross lesion. The inner surface of the aorta just above the valve measured 9.3 cm. The ascending aorta was smooth and glistening without gross changes: 2 cm. above the valve it measured 8.3 cm. Just distal to the origin of the left subclavian, the inner circumference of the descending aorta was only 4.4 cm.

Histologic study of the myocardium (by Dr. Jack C. Norris) showed extensive fibrosis characterized by proliferating fibroblasts with a few lymphocytes (fig. 7). Fusiform groups of fibroblasts intermingling with atypical epithelioid cells (fig. 8) were diagnosed as quiescent Aschoff bodies.

COMMENT

Osler first divided cases of calcification of the aortic valve into "those with and without arteriosclerosis." In this case arteriosclerosis was singularly lacking in the retinal and coronary arteries, and in the aorta. From the history and microscopic studies we feel justified in saying that it belongs to the group Osler described as of rheumatic origin. We have diagnosed but one other case of calcification of the aortic valve, and this was in a man of 59 who is still living; it was typical of the

more common type. A calcified aortic valve is a matter of importance in differential diagnosis because in the South as soon as an aortic diastolic murmur is detected, particularly in a Negro, we are only too apt to make a diagnosis of syphilitic aortic insufficiency. One of us has studied more than 140 cases of the syphilitic type of valvular involvement but has not heard such a harsh murmur in any of them, nor has the occasional aortic thrill (noted by Corrigan) even been so intense.

The electrocardiograms gave evidence of severe myocardial damage and a serious prognosis: the "T-1 and S-2 combination" remarked on by Proger and Minnich,[11] the bundle branch block and the increase in the PR interval.

It has often been said that the Negro is not subject to angina pectoris. Aside from the frequency of retrosternal pain in syphilitic cases, we have noted cardiac pain in a number of cases of hypertension and arteriosclerosis, and in one case of biventricular aorta with pulmonic stenosis. We have also seen several cases of angina in rheumatic heart disease, although rheumatic heart disease is not common in Atlanta. This patient suffered from classic angina pectoris.

SUMMARY

In a Negro, aged 37, with a long history of cardiac pain and a relatively short history of congestive heart failure, the diagnosis of calcification of the aortic valve was made during life.

104 Ponce De Leon Avenue.

DURATION OF FRACTURES AND OPERATIVE DEFECTS OF THE SKULL

AS REVEALED BY ROENTGENOGRAMS

(A FOLLOW-UP STUDY OF ONE HUNDRED PATIENTS)

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AND
EDWARD S. BLAINE, M.D.
LOS ANGELES

The persistence of skull fractures and other cranial defects over a period of years, as visualized by the roentgenogram, is not only of medicolegal importance but of great academic interest. In order to obtain some idea of the reaction of the skull to traumatic and surgical defects, 100 cases have been studied by repeated x-ray examination, over a period of from one to ten years. Certain technical difficulties have arisen in this follow-up study, mainly the taking of x-ray films at similar angles of the original and the utilization of similar tube distances, milliamperage and voltage, as well as the time and temperature for film development. In certain shelving fractures or some depressed fractures great difficulty of x-ray detection was encountered because of the obliquity to the line of cleavage, which necessitated the taking of numerous films. Attention was concentrated on all these points of technic, and efforts were exerted to duplicate such technic as nearly as possible. These traumatic and surgical defects, which comprise this series, have been classified as follows:

1. Linear fractures:
   (*a*) Linear fractures under 5 years of age.
   (*b*) Linear fractures in adults.
2. Depressed fractures:
   (*a*) Depressed fractures without elevation of fragments.
   (*b*) Depressed fractures with elevation of fragments.
   (*c*) Depressed fractures, fragments hammered out.
   (*d*) Depressed fractures, fragments removed.
3. Operative defects:
   (*a*) Simple decompressions.
   (*b*) Bone flaps with degeneration.
   (*c*) Bone flaps without degeneration.
   (*d*) Regeneration of osteoperiosteal graft.
   (*e*) Degeneration of bone islands left in skull defects.

LINEAR FRACTURES

(*a*) *Children.*—In this series there are fifty patients with linear fractures, five of these occurring in children under the age of 5 years and the other forty-five in adults ranging in age from 18 to 58 years. In all the children the linear fracture entirely disappeared within six months after injury. On rare occasions the skull around the fracture becomes absorbed and a large bony defect becomes apparent. None of the cases in this series showed this situation.

Fig. 1.—Linear fractures in a child.

A child, aged 2½ years, fell from a two story window and was unconscious for two days (fig. 1). The original film reveals a linear fracture crossing the superior portion of the left and right frontal bone, extending backward into the parietal bone; another linear fracture was present in the left parietal bone and extended into the squamous portion of the temporal bone, thence into the base. Films taken five and a half months later failed to demonstrate any evidence of fracture.

(*b*) *Adults.*—In the forty-five adults, very definite variations occurred. In one patient the x-ray evidence of fracture existed five years after injury, but films taken eight years after injury showed a complete disappearance. In another patient the disappearance of x-ray evidence was complete within a year after injury. In the majority of cases, however, fading of the fracture line commenced approximately eighteen months after injury and the fracture entirely disappeared in approximately four years. This marked variation in adults may be explained by the difference in the depth of the fracture as well as the amount of separation. A man, aged 45, was injured in an automobile accident. He was rendered unconscious and remained irrational for a period of four weeks. Roentgenograms taken Oct. 13, 1930, revealed a linear fracture of the left parietal bone, extending to the anterior part of the squamous portion of the temporal bone. A roentgenogram taken April 17, 1933, some two and a half years

11. Proger, S. H., and Minnich, W. R.: Left Axis Deviation With and Without Heart Disease, Am. J. M. Sc. **189:** 674-681 (May) 1935.

Read before the Radiology Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13, 1935.

later, revealed a definite fading of the fracture, but evidence of its existence was still present. This is characteristic of the usual skull fracture.

DEPRESSED FRACTURES

(*a*) *Without Elevation.*—Depressed fractures have been divided into four groups, each of these groups comprising six or less cases. A man, aged 57, fell from

Fig. 2.—Note rounded appearance of depressed area.

a two-story building, striking his head, and was rendered unconscious. Films taken immediately after the injury revealed a depressed fracture of the temporo-

Fig. 3.—Depressed fracture with fragments removed. The size of the defect is the same after a period of seven years.

parietal regions. Elevation was not carried out. Approximately a year and two months later x-ray films were again taken. In the lateral view the line of fracture had entirely disappeared. In the postero-anterior view (fig. 2) the rough lines are rounded and the appearance of a complete union of the fragments is apparent. In these cases the roentgenographic evidence reveals extreme pathologic change, but in spite of this the fracture seems to heal better, roentgenographically, than a simple linear fracture. It is possible that the overlapping of bone and the close approximation of these depressed fragments are responsible for a more compact bone union than occurs in the linear cases.

(*b*) *Depressed Fractures with Elevation of the Fragments.*—In this series of cases the fragments were elevated into position. None of these were removed. In all these cases, evidence of depression or evidence of fracture were entirely obliterated in from two to four years. In the case of a man, aged 29, receiving a depressed fracture of the right parietal region, elevation was carried out. X-ray films taken four years later revealed entire disappearance of the fracture line with complete bony union.

(*c*) *Depressed Fractures with Fragments Hammered Out.*—A man, aged 38, was struck on the head by a timber, receiving a large depressed fracture in the right

Fig. 4.—Degeneration of a bone flap. Linear fracture present.

parietal region. A bone flap was turned down and the fragments were hammered out. Films taken nine months after the injury showed no evidence of depression, with a complete disappearance of the fracture lines. Films taken four years later were the same, the flap being normal and showing no evidence of degeneration.

(*d*) *Depressed Fractures with Fragments Removed.*—In cases with depressed fractures in which the fragments were removed, the bony defect persisted (fig. 3). A man, aged 32, was injured in an automobile accident, receiving a compound comminuted depressed skull fracture. The fragments were elevated and removed. Films taken seven years later differ in no way from the films taken shortly after operation, excepting that the bony edges have become smoother; the size of the defect has not decreased in any way.

OPERATIVE DEFECTS

(*a*) *Simple Decompressions.*—Simple decompressions act similarly to depressed fractures with the removal of fragments. The bone never fills in and the edges become smooth and rounded. Cases in this series have shown bony defects extending as long as thirty years.

(*b*) *Bone Flaps with Degeneration.*—A man, aged 29, was struck on the head with a blackjack, receiving a linear fracture of the skull. A subdural hematoma developed shortly afterward, for which a bone flap was turned down in another clinic. Films taken four months after surgery revealed a linear fracture as well as osteolytic changes in the entire bone flap, with osteoporosis and large areas of complete disappearance of bone structure (fig. 4). Films taken five and a half years after injury revealed a progressive loss of bone structure in the bone flap. Only a few islands of bone still remained and the fracture line had disappeared (fig. 5). On palpation there is no evidence of softening, and the bony covering is firm and solid.

(*c*) *Bone Flap Without Degeneration.*—Osteoplastic bone flaps of the skull turned down for tumor or hemorrhage usually do not degenerate. In this series of cases the majority appeared entirely normal and the outline was always apparent on the roentgenograms up to ten years after operation, the longest lapse of time in our series. On autopsy and secondary surgery no evidence of calcification or bony union was found between bone flap and skull. The flap was firmly held in place and united to the skull by heavy bands of fibrous tissue.

(*d*) *Regeneration in an Osteoperiosteal Graft.*—A man, aged 38, had a compound comminuted depressed fracture of the vault with a subsequent development of an extradural abscess. The depression was elevated, the fragments were removed and the abscess was drained. The patient made an uneventful recovery. One year later (fig. 6) an osteoperiosteal graft was placed in situ. Films taken from time to time revealed a gradual formation of bone over the graft. The graft at all times was firm and solid.

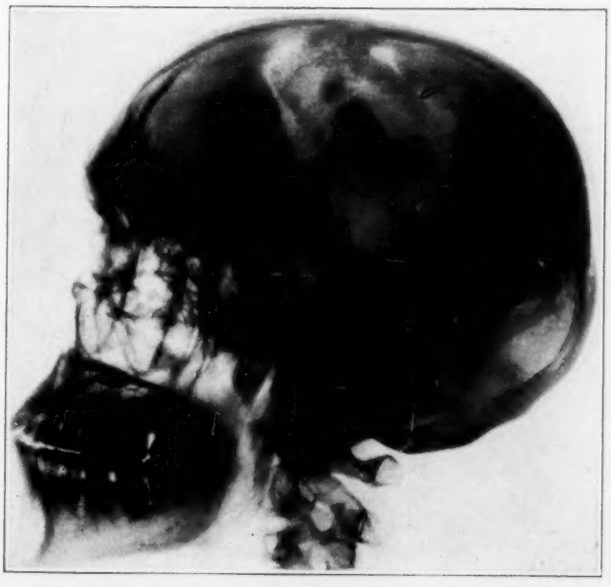

Fig. 5.—Increasing degeneration of bone flap. Disappearance of fracture five and a half years after injury.

(*e*) *Degeneration of Bone Island Left in a Depressed Fracture.*—A man, aged 43, was struck on the head by an iron hook, with a resultant depressed skull fracture, which was elevated in another clinic. Some of the fragments of bone were left in situ. Films taken two years later revealed a progressive absorption of these fragments. Palpation did not reveal any evidence of softening or irregularity.

From this study it will be seen that skull fractures heal quite differently than do fractures of the long bones. No visible callus forms and the healing is affected by the formation of connective tissue, which slowly becomes osseous as the result of the slow deposit of inorganic material. In none of these cases has there been any radiographic evidence of callus formation.

Fig. 6.—Fragments removed at first operation. An osteoperiosteal graft inserted. Note formation of bone islands in the graft.

The presence or absence of skull fracture, as visualized by the x-rays, is of little or no importance in the prognosis of the case. We are primarily interested in brain injury and not skull fracture. The presence of fracture, however, is positive evidence that a definite blow has been struck and that an injury has been received. Thus radiographic evidence of fracture is an aid in eliminating malingering. Unfortunately, the public, including attorneys, place altogether too much emphasis on the existence of a fracture line. The results of this study will be of great aid in determining the difference between an old and a recent fracture. Furthermore, when there is a question of doubt as to the presence of fracture, films taken at a later date will help to show the status of the particular shadow in question.

From this study it is quite apparent that x-ray films taken from eight months to several years after injury are of equal value to those taken immediately after the injury in determining the presence or absence of skull fracture.

CONCLUSIONS

1. Linear fractures in children under 6 years of age disappear within six to twelve months after injury.

2. In the minority of cases, linear fracture in adults begins to fade from six to nine months after injury and disappears in from twelve to eighteen months. The majority, however, show fading from eighteen to twenty-four months after injury and entirely disappear from four to five years, rarely longer.

3. In depressed fractures without elevation, the fragments become rounded and unite, and the lines of fracture cannot be detected, though the depression is apparent.

4. In operative defects wherein the bone has been removed, or in cases of depressed fracture wherein the fragments have been removed, the cranial defect never becomes smaller, the only change being a rounding of the edges.

5. Bone flaps may either undergo absorption or appear normal.

6. Bone grafts properly placed form a definite covering over the defect.

7. In medicolegal cases of old and recent injury the approximate age of the existing line of fracture may be determined.

8. The status of questionable fracture lines may be determined by their fading and disappearance.

9. X-ray films taken from six months after injury in children to nine months after injury in adults are as valuable as those taken immediately after injury in determining the presence or absence of fracture.

Roosevelt Building.

BENZEDRINE SULFATE AND ITS VALUE IN SPASM OF THE GASTRO-INTESTINAL TRACT

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BOSTON

The problem of the muscular activity, normal and abnormal, of the gastro-intestinal tract is one that has intensely engaged the attention of physiologists, roentgenologists and clinicians. The alimentary canal is so linked up with the emotional state of the human being that every profound disturbance in mood, particularly any sudden shock of fear or disagreeable emotion, is associated with marked changes in the activity and tonus of the digestive tube. This set of hollow organs rivals the circulatory system in its relationship to the affective life of man. Abnormal motor activity, especially spasm, is definitely caused by organic disease of the gastro-intestinal tract and, too, the gastro-intestinal tract responds by spasm and abnormal motility reflexly to diseases of other structures of the body. It is especially with spasm of functional, organic and reflex type that we have concerned ourselves in this paper.

We shall not discuss in detail the physiology of the muscular activity of the gastro-intestinal tract. This is very complicated and in many particulars is still obscure. It may be stated that, in a general way, the action of the parasympathetic nervous system and of drugs of the parasympathicomimetic type, such as mecholyl and physostigmine, increases the tonus and peristaltic activity of the stomach and intestine. On the other hand, the action of the sympathetic nervous system and of drugs of the sympathicomimetic group is to decrease tonus. This is true only as a general statement and has many exceptions, which depend mainly on the fact that these two divisions of the autonomic nervous system are in a state of equilibrium. Disturbances of the delicate balance between these two portions of the autonomic mechanism may be as important as sympathetic or parasympathetic stimulation. Also it is well established that the type and degree of stimulation, and the antecedent state of the organs before the application of the stimulus, play a very important part in determining the final result in increase or decrease of tonus and peristaltic activity.

Read before the Boston Society of Psychiatry and Neurology, March 19, 1936.

The authors are indebted to Smith, Kline & French Laboratories for their generosity in supplying the benzedrine sulfate.

From the Division of Psychiatric Research, Boston State Hospital, Mattapan, Mass., aided by grants from the Commonwealth of Massachusetts and the Rockefeller Foundation; and from the X-Ray Division of the Boston City Hospital.

Spasm in the gastro-intestinal tract is a major clinical problem; it is particularly important to the roentgenologist, as it occurs frequently and since it may be a very confusing and annoying factor in the roentgen examination of the stomach and intestine. Spasm may involve any part of the alimentary canal or several portions simultaneously; it may be of any degree, from slight and superficial to deep and extensive contractures; it may be of fleeting duration or persist intermittently or constantly for long periods of time. The deformities caused in the stomach and intestine by reflex or functional spasm may closely simulate organic disease and often make accurate roentgen diagnosis difficult or actually impossible. In other instances, spastic manifestations may mask or obscure the true pathologic process and lead to incorrect conclusions.

Spasm originates from diverse causes. It may result from (1) functional disturbances such as worry, dislike of the opaque meal, fear caused by the darkness and surroundings of the roentgenoscopic room, apprehension as to the result of the roentgen examination, and other psychologic factors; (2) the neuroses and psychoses; (3) intrinsic disease of the gastro-intestinal tract, for example, cancer, peptic ulcer or appendicitis, and (4) extra-alimentary conditions such as renal colic, plumbism or tabes dorsalis.

Roentgenologists and clinicians have long felt the need of a drug or other means of abolishing spastic manifestations in the gastro-intestinal tract. If the spasm is due to psychologic factors, reassurance is effective in a small percentage of cases. Massage of the abdomen and pressure over the stomach and intestine with the gloved hand during the roentgenoscopic studies may at times lessen or abolish the spasm; if there is local tenderness or rigidity of the abdominal muscles, these measures cannot be applied. Many drugs, particularly atropine and benzyl benzoate, have been used, but it is generally agreed that these are unavailing and their use has been practically abandoned.

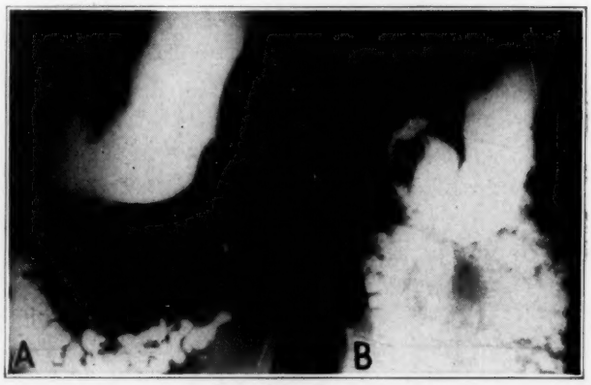

Fig. 1.—*A*, before the administration of benzedrine sulfate the pylorus was markedly spastic. The duodenum filled only partially and the stomach emptied very slowly. *B*, after the drug was given the spasm disappeared in about ten minutes and the pylorus and duodenum filled normally.

As discussed in a previous communication by Ritvo and Weiss,[1] a drug or other antispasmodic method which is to be of value to the clinician and roentgenologist should have the following characteristics: (1) The effect should be of sufficient duration to permit of thorough study, yet not unduly prolonged; (2) it should not cause unpleasant or dangerous reactions; (3) it should be rapidly and uniformly effective when

1. Ritvo, Max, and Weiss, Soma: Physostigmine as an Aid in Gastro-Intestinal X-Ray Diagnosis, Am. J. Roentgenol. **18**: 301 (Oct.) 1927.

given orally, as some patients may object to injection methods; (4) the routine roentgen studies should not be interfered with, and (5) it should be generally available and inexpensive.

We have studied the effect of benzedrine on the spastic states of the gastro-intestinal tract. Benzedrine is a synthetic derivative of ephedrine with the chemical formula $C_6H_5CH_2CHNH_2CH_3$. In the form of benzedrine sulfate it is stable and can be administered orally. It causes stimulation of the sympathetic nervous system and has been used successfully in the treatment of narcolepsy. Our study definitely demonstrates that benzedrine sulfate in nontoxic doses lessens or abolishes spastic manifestations of the gastro-intestinal tract within a few minutes.

In cases of pylorospasm, roentgen examination may be greatly interfered with; the opaque meal leaves the stomach only after considerable delay and then may pass out in such small spurts that the sphincter and duodenum do not fill sufficiently for satisfactory roentgenoscopic visualization. Ulcer craters and other pathologic processes may therefore be obscured, and until the spasm disappears there is no way to determine with

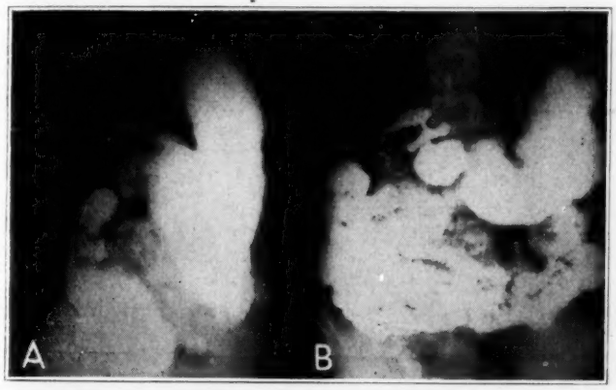

Fig. 2.—The examination before the drug was given revealed, *A*, a small, contracted and irregular duodenum. There was spasm of the pylorus and duodenum with very slow emptying of the stomach. The manifestations suggested ulcer; however, the duodenal outline was so poorly visualized that a positive diagnosis was not possible. *B*, after the ingestion of 30 mg. of benzedrine sulfate, the spasm relaxed and the opaque meal filled the pylorus and duodenum, clearly demonstrating a duodenal ulcer. Note that the stomach shows good tonus and peristaltic activity under the influence of the drug.

certainty whether or not there is intrinsic disease in the region of the pylorus. After the administration of benzedrine sulfate, the relaxation of the sphincter permits the passage of a broad stream of the barium sulfate mixture through the pylorus and duodenum. The nature and extent of the pathologic process may then be demonstrated with greater certainty and with saving of time and energy to both the patient and the physician; or, if the defects and irregularities that were present disappear under the influence of the drug, the presence of local disease can be definitely excluded. The drug has shown itself to be of especial value in the diagnosis and localization of peptic and duodenal ulcer. During the routine roentgen studies it is frequently impossible, even after the most careful and prolonged observation, to state more than that the pylorus and cap are contracted and fill irregularly. We have on numerous occasions in this type of case clearly demonstrated a definite ulcer crater after the administration of benzedrine sulfate.

Gastric tonus is affected to some extent by the drug, the effect being to lessen the tone moderately. Stomachs that were previously hypertonic become more nearly normal in this respect. The stomach with normal or poor tonicity may, however, show little if any change. Peristaltic activity is diminished slightly, if at all, after the administration of benzedrine and in some instances may be increased. We had expected that a drug which abolished spasm would at the same time cause atonicity and a marked decrease or absence of peristaltic activity. This would be of distinct disadvantage both to the roentgenologist, who depends greatly on peristalsis in

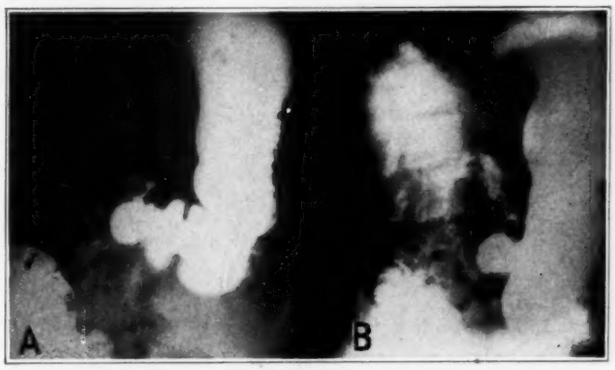

Fig. 3.—The examination revealed *A*, a narrow, irregular pylorus with unsatisfactory visualization of the duodenum. Peristalsis was active, but only very small amounts of the opaque meal passed through the sphincter during prolonged fluoroscopic observations. *B*, after the administration of benzedrine sulfate, the pylorus and duodenum filled well and the stomach emptied rapidly. An ulcerous crater in the region of the pylorus was distinctly visualized.

determining the constancy and extent of filling defects and irregularities in the stomach and duodenum, and to the clinician, who naturally does not wish to substitute atonicity and inertia for spasm. For example, during roentgen examination peristaltic waves pass through areas in which there is a filling defect due to extrinsic pressure or spasm, whereas with intrinsic lesions the waves are arrested or completely broken on reaching the process in the stomach wall. Therefore the fact that peristaltic action is not interrupted by benzedrine sulfate is of great clinical importance. The stomach actually empties more rapidly than normally under the influence of the drug, the relaxation of the

Fig. 4.—The examination without an antispasmodic revealed *A*, a moderate degree of pylorospasm and a defect on the lesser curvature side of the duodenal cap, which appeared constant. *B*, after the giving of 30 mg. of benzedrine sulfate orally, a broad stream of the opaque mixture passed through the pylorus and duodenum and the deformity of the duodenal cap disappeared. The second and third portions of the duodenum showed angulation and displacement caused by adhesions from the gallbladder.

sphincter allowing the food to pass out of the stomach more rapidly than normally. This is in direct contrast to observations after the administration of ephedrine.[2]

2. Van Liere, E. J.; Lough, D. H., and Sleeth, C. K.: The Effect of Ephedrine on the Emptying Time of the Human Stomach, J. A. M. A. **106**: 535 (Feb. 15) 1936.

In the intestine, the effects are similar in character to those described in the stomach. After the administration of benzedrine sulfate the lumen of both the large and the small bowel is increased; the haustrations become broader and shallower; and contractures or irregularities due to spasm diminish markedly or disappear entirely. The barium enema examination in cases of spasticity of the colon can be carried out more

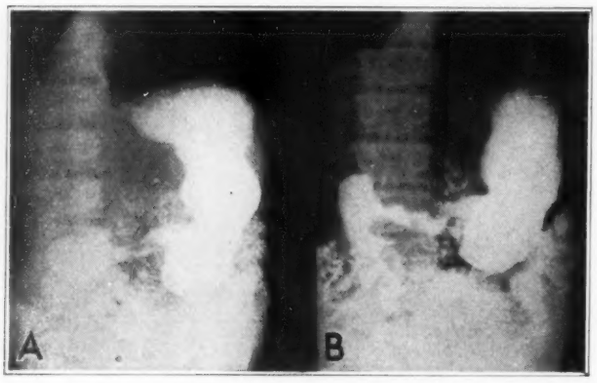

Fig. 5.—The film before benzedrine was given showed *A*, irregularity of outline and narrowing of the prepyloric region. *B*, after the drug was taken, a large, irregular filling defect typical of carcinoma involving the distal third of the stomach was clearly outlined. The extent and character of the lesion are visualized with much greater clarity and the diagnosis is made more certain by the use of the benzedrine sulfate.

rapidly and with much less discomfort to the patient when benzedrine sulfate is used, as the patient is enabled to retain the enema more satisfactorily after the abolition of the spasm. The drug has been found to be of value also in the treatment of spastic conditions of the colon.

The dosage for the average patient is 30 mg. of benzedrine sulfate orally; very stout patients may require 40 mg., while thin and very young individuals are given from 10 to 20 mg. The patient ingests the opaque meal, and roentgenoscopic observations are carried out as usual. If there is spasm that does not disappear after manual pressure, reassurance and the other customary maneuvers, the benzedrine sulfate tablets are given with a few sips of water. After from

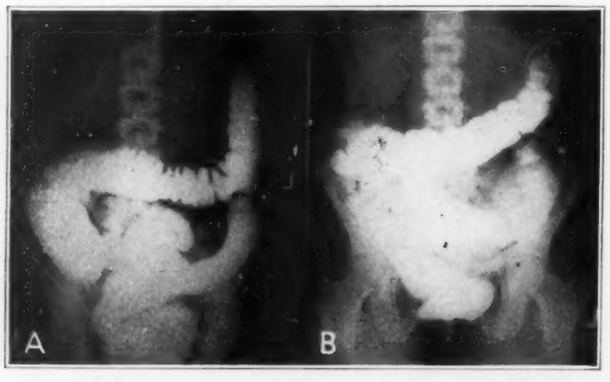

Fig. 6.—The barium enema examination of the colon without the drug shows *A*, a markedly spastic colon. The haustrations are deep and numerous; the caliber of the colon is very narrow. *B*, after the administration of 30 mg. of benzedrine orally, the haustrations diminish in number and depth. The colon is wider and distinctly less spastic than previously.

five to ten minutes the roentgenoscopic observations and taking of films are again carried out. The six hour, twenty-four hour or other desired observations are made as usual. In over 85 per cent of our cases, the drug has brought about satisfactory disappearance of the spastic manifestations. If the desired effect is not obtained, we feel that it is preferable to repeat the examination with slightly greater dosage on a subsequent date rather than to give an additional dose. The effect begins in about ten minutes and reaches its height in from fifteen to thirty minutes; it lessens within an hour and gradually disappears.

Unpleasant effects may occur in a very small number of cases (about 2 per cent in our series) and consist of chilly sensations, flushing, diarrhea and general malaise. We have administered the drug to more than 200 patients and in only one instance was there a severe reaction. This patient had chills, nausea, collapse, restlessness and diarrhea; however, these symptoms did not occur until several hours after the drug was taken, and there is doubt in our minds as to whether the drug was responsible. There is a definite feeling of well being after the use of benzedrine sulfate; there may be sleeplessness or restlessness during the following night if the drug is administered late in the afternoon. The drug causes moderate rise in blood pressure (about 20 to 50 mg. of mercury) and we therefore recommend caution in its use in the presence of severe cardiac disease. On the whole, we believe that the drug is nontoxic and in the doses recommended may be used

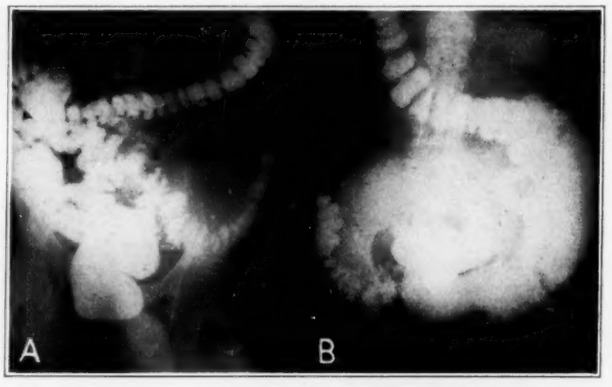

Fig. 7.—The routine examination of the colon by opaque enema shows *A*, a spastic, contracted colon. *B*, after the administration of benzedrine sulfate, the colon is atonic with but few, shallow haustrations.

safely wherever desired. In a series of several hundred patients given similar doses during the course of other investigations by Myerson and his co-workers, no ill effects were observed. There has been noted no idiosyncrasy to the drug in single doses except in some cases of mental disease.

SUMMARY

1. Benzedrine sulfate is a sympathicomimetic drug which has been found to be of great value in diminishing or abolishing spasm of the gastro-intestinal tract.

2. This effect is observed when the spasm is due to whatever cause, such as unpleasant emotion, organic disease of the gastro-intestinal tract, and reflex spasm due to disease elsewhere in the body.

3. This effect greatly facilitates the roentgen study of the gastro-intestinal tract, makes differential diagnosis between functional and organic spasm more certain, and gives better visualization of organic lesions.

4. The effect is almost immediate and is, on the whole, unattended with any side effects of importance.

5. Clinically it has been found useful in relaxing spasm, such as is found in spastic colitis and pyloric spasm, and this has been of therapeutic benefit to the patient.

475 Commonwealth Avenue — 485 Commonwealth Avenue.

THE STATE OF THE STERNAL BONE MARROW

IN A CASE OF MACROCYTIC (PERNICIOUS) ANEMIA OF PREGNANCY

NORMAN HEILBRUN, M.D.
BUFFALO

Normal hematopoiesis depends among other things on the formation of an antianemic factor, which comes from the interaction of an intrinsic factor found in the gastric juice and an extrinsic factor present in the diet.[1] The antianemic factor when produced is apparently stored in the liver.[2] If there is a lack of intrinsic factor or extrinsic factor, or if there is disease of the liver so that the antianemic factor is not stored, macrocytic anemia will develop.

The macrocytic anemia of sprue has been studied; and the relationship between it and true pernicious anemia, both from the point of view of a lack of essential factors and the similarity of the bone marrow in relapse, has been emphasized.[3] Clinical studies have shown that in the macrocytic anemia of pregnancy there is a temporary lack of the intrinsic or the extrinsic factor.[4] This brings about a blood picture similar to true pernicious anemia, which therapeutically responds to substances containing the antianemic factor. Adequate reports of the condition of the marrow in macrocytic anemia of pregnancy are few and somewhat inconsistent; the cases reported were seen in India. One author states that the marrow is mostly aplastic but that megaloblastic cells are present.[5] Another[6] reports that the marrow is hyperplastic and that nongranular mononuclear cells and myelocytes are greatly in excess. No studies of the state of the marrow of cases seen in the Occident seem to have been described. The case given here presented the opportunity of studying the sternal marrow of a young American woman with this condition. Biopsies were obtained both before and thirty-one days after treatment with liver extract was started.

METHOD

A small incision was made in the sternum between the third and fifth costal cartilages. The periosteum was elevated and a small button of bone removed with a trephine. Smaller fragments were obtained by means of a small curet. The periosteum was next sutured with fine catgut, and the skin was approximated with horsehair sutures. A tight bandage was then applied. The button and larger fragments were used for sections. These were fixed in Zenker's fluid and 5 per cent acetic acid, decalcified, embedded in paraffin, sectioned, and stained with eosin-methylene blue and Giemsa stain. Smears, prepared from the smaller fragments, were stained with Giemsa stain.

From the service of Drs. N. G. Russell and A. H. Aaron (First Medical) of the Buffalo General Hospital, and the University of Buffalo School of Medicine.

1. Castle, W. B.; Townsend, W. C., and Heath, C. W.: Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia, Am. J. M. Sc. **178:** 748-764, 764-776 (Dec.) 1929; **180:** 305-335 (Sept.) 1930.

2. Goldhamer, S. M.; Isaacs, Raphael, and Sturgis, C. C.: The Rôle of the Liver in Hematopoiesis, Am. J. M. Sc. **188:** 193-199 (Aug.) 1934.

3. Castle, W. B., and Rhoads, C. P.: Observations on the Etiology and Treatment of Sprue in Puerto Rico, Tr. A. Am. Physicians **47:** 245-247, 1932. Rhoads, C. P., and Castle, W. B.: The Pathology of the Bone Marrow in Sprue Anemia, Am. J. Path. **9:** 813-826 (Nov.) 1933.

4. Strauss, M. B., and Castle, W. B.: Studies of Anemia in Pregnancy: The Etiologic Relationship of Gastric Secretory Defects and Dietary Deficiency to Hypochromic and Macrocytic (Pernicious) Anemias of Pregnancy and the Treatment of These Conditions, Am. J. M. Sc. **185:** 539-551 (April) 1933.

5. Balfour, M. I.: The Anemia of Pregnancy, Indian M. Gaz. **62:** 491-496 (Sept.) 1927.

6. Gupta, N.: The Anemia of Pregnancy, Indian M. Gaz. **67:** 421-432 (Aug.) 1932.

REPORT OF CASE

A white woman, aged 21, married, admitted to the First Medical Service of the Buffalo General Hospital April 24, 1935, had been delivered of a normal female child three months previously. She complained that for the past month she had suffered a loss of appetite, which had been accompanied by more or less continuous nausea and vomiting during the two weeks prior to admission, and that slight exertion brought on severe dizziness with spots and blackness before the eyes, followed by marked prostration. Precordial pain on exertion had been present a week, and swelling of the ankles was noted two days prior to her entrance. However, with difficulty, she had been able to carry on her work up to the day before admission.

During the last month of her pregnancy her appetite had begun to fail, and she had eaten little more than a small daily portion of fruit and vegetables, with meat once or twice a week. After term her appetite did not improve, and during the four months before admission she had lived largely on milk and a small amount of fruit, with little or no meat.

On admission she was extremely sick. Pallor and dyspnea were marked. All the accessory muscles of respiration were used. The temperature was 100.5 F., the pulse 120, and the

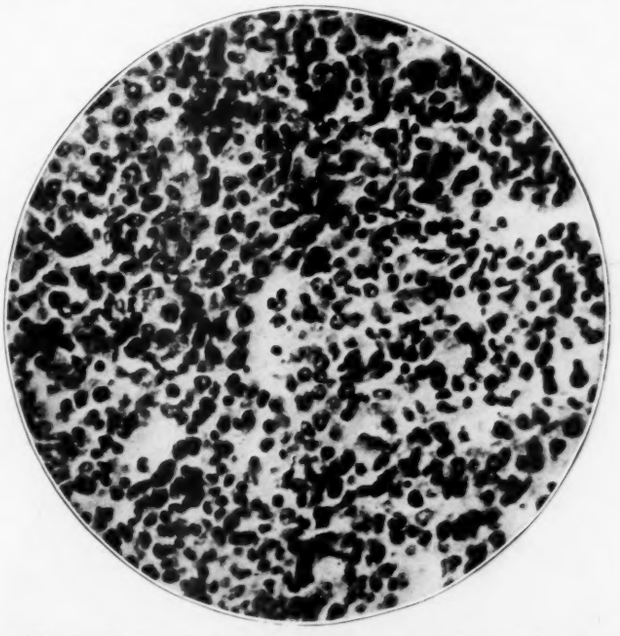

Fig. 1.—Section of sternal marrow removed at biopsy before treatment was started. Note the absence of fat and the presence of great numbers of megaloblasts with a reduction of the normoblastic and myelocytic elements. (Low power.)

respirations 26 per minute. The pupils reacted to light and to accommodation. Small flame shaped hemorrhages were present in both fundi. The tongue was pale and smooth, but no glossitis was present. Dental caries was present. Percussion showed that the heart was slightly enlarged to the left. A loud, harsh, systolic murmur was heard over the precordium and most intensely over the second left interspace. The blood pressure was 90 systolic, 40 diastolic. The liver was moderately enlarged and tender. Pitting edema was noted over both lower extremities, but there were no pathologic neurologic manifestations. The blood count on admission showed 450,000 erythrocytes with hemoglobin of 15 per cent by the Newcomer method. Examination of the stained smear revealed a macrocytic type of anemia, characterized by large oval cells well filled with hemoglobin, which was in no respect different from that seen in true pernicious anemia. There was a slight leukopenia, but no abnormal white cells were seen. The icteric index was 25, and the quantitative van den Bergh test showed 1.4 mg. of bilirubin per hundred cubic centimeters of blood. The blood urea nitrogen was 39 mg. per hundred cubic centimeters of blood. The total serum proteins were 4.5 per cent, the albumin 3.1 per cent, and globulin 1.4 per cent. This low level of the proteins no doubt accounted in part for the edema that was present. The urine was of normal concentration. It showed a slight trace of albumin and a sediment containing many pus cells.

Urobilinogen was present in a dilution of 1 to 40. Vomitus obtained on admission showed the presence of free hydrochloric acid and pepsin.

A transfusion with 500 cc. of blood was performed soon after admission and the following day a sternal biopsy was made. Large doses of liver extract were then given intramuscularly daily during the first week and once a week thereafter. Marked improvement was noted during the first few days, and the patient made a progressive recovery. The blood examinations are listed in the accompanying table. The temperature ranged from 99.5 to 102 F. for about three weeks and gradually fell to normal at the end of the sixth week. During the first week hoarseness was noted, and a laryngoscopic examination revealed a complete paralysis of the left vocal cord, which, however, had almost disappeared by October. From the table it is seen that there was a prompt reticulocytic response to the liver extract, and the count showed a steady increase in the red blood cells and hemoglobin. It is interesting to note that, about six weeks after treatment was started, the anemia began to change from the macrocytic type to the more common microcytic hypochromic variety; it is not unlikely that both conditions were present in this case at the beginning but that the iron deficiency did not become apparent until the count reached the higher levels. At the end of June the patient was put on ferrous sulfate, which she continued until the first part of August, when the number of red cells and the hemoglobin concentration were within normal limits. She was not seen again until October. The count then revealed that the hemoglobin had dropped in spite of the steady increase in the number and size of the red cells. Ferrous sulfate was started again.

BIOPSY BEFORE TREATMENT

The smear stained with Giemsa stain showed numerous megaloblasts. The hemoglobin in the cytoplasm varied from none at all to almost normal concentration. These cells comprised at least half of all the nucleated cells. Normoblasts and granular leukocytes were present. The granular cells consisted of neutrophilic myelocytes, young polymorphonuclear

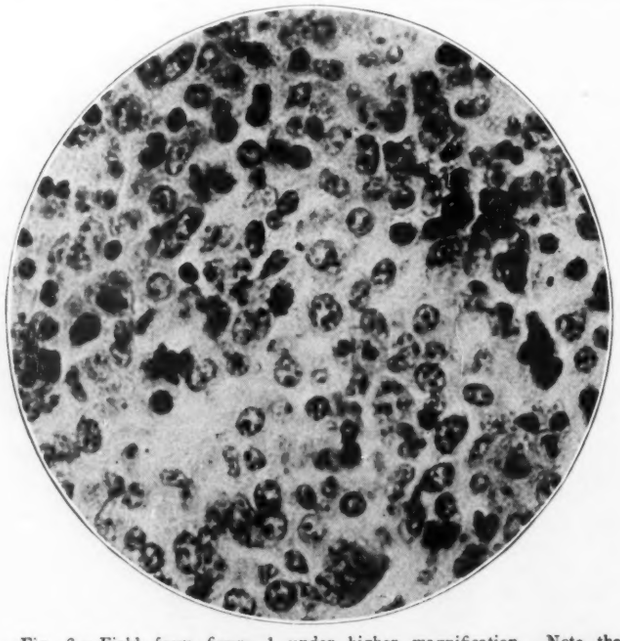

Fig. 2.—Field from figure 1 under higher magnification. Note the large number of megaloblasts (round, pale nuclei) almost in syncytial arrangement, and the small number of normoblasts (round dense nuclei).

cells, and eosinophilic myelocytes and leukocytes. The latter seemed to be slightly increased in number. A few megakaryocytes were seen.

The section of marrow showed complete cellularity and an absence of fat. The microscopic appearance is illustrated in figures 1 and 2. Fully half the cells were large, with faintly staining nuclei and abundant pale blue cytoplasm. These were somewhat irregular in shape, but the nuclei were round or slightly ovoid with one or two nucleoli. The cells seemed almost syncytial. There was a moderate number of normoblasts with dense small nuclei, which were oval, round or clover shaped. The cytoplasm of some of these was slightly more abundant than others. Some were deficient in hemoglobin and stained grayish blue or had small purplish granulations in the cytoplasm. Here and there were megakaryocytes, the nuclei of which had the same characteristics as the primitive cells. There were some small deeply stained naked nuclei, apparently

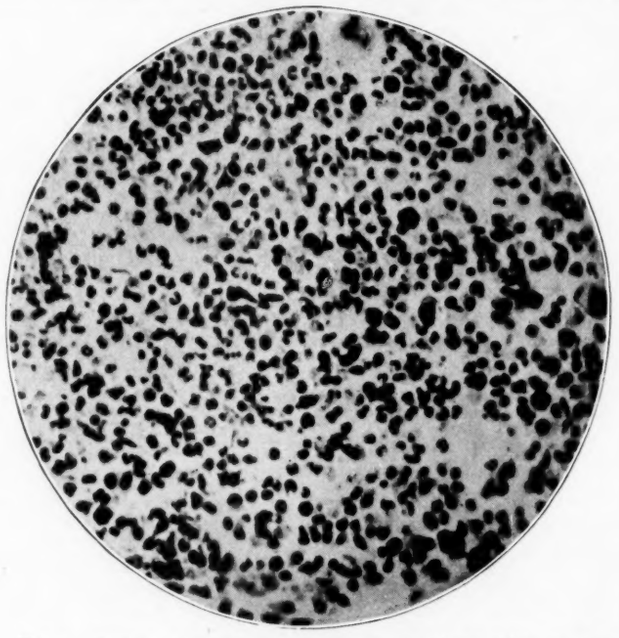

Fig. 3.—Section of sternal marrow removed at biopsy thirty-one days after treatment was started. Note the large number of normoblasts, myelocytes and young polymorphonuclear cells. The megaloblasts are almost completely absent. (Low power.)

normoblastic in origin. Myelocytic elements were strikingly infrequent. The eosinophilic cells appeared to be slightly increased. Some had large oval nuclei and others the typical polynuclear lobulations. Histologically this was a distinctly abnormal marrow.

Blood Examinations

Date	Erythrocytes	Hemoglobin, %	Reticulocytes, %	Hematocrit, %	Volume Index	Color Index	Saturation Index
4/25/35	450,000	15	2.7	7.0	1.66	1.66	1.00
4/26/35	.....	..	2.2	....	....	....	....
4/27/35	720,000	20	2.7	11.0	1.66	1.39	0.84
4/28/35	.....	..	4.7	....	....	....	....
4/29/35	.....	..	6.4	....	....	....	....
4/30/35	1,580,000	33	8.7	....	....	....	....
5/ 1/35	.....	..	18.4	....	....	....	....
5/ 2/35	.....	..	23.8	....	....	....	....
5/ 3/35	.....	..	23.0	....	....	....	....
5/ 4/35	1,930,000	36	29.7	....	....	....	....
5/ 5/35	.....	..	27.8	....	....	....	....
5/ 6/35	.....	..	22.7	....	....	....	....
5/ 8/35	1,970,000	39	20.1	....	....	....	....
5/ 9/35	.....	..	19.6	....	....	....	....
5/12/35	2,350,000	42	....	....	....	....	....
5/13/35	.....	..	10.9	....	....	....	....
5/17/35	2,150,000	46	....	23.0	1.16	1.07	0.92
5/22/35	2,600,000	52	....	....	....	....	....
6/ 3/35	2,940,000	66	....	32.0	1.19	1.14	0.96
6/13/35	3,500,000	72	....	34.0	1.06	1.03	0.97
6/25/35	3,300,000	62	....	33.0	1.08	0.91	0.86
7/ 1/35	3,810,000	62	....	36.5	1.04	0.81	0.78
7/ 8/35	4,360,000	73	....	35.9	0.89	0.83	0.93
7/16/35	4,480,000	71	....	35.9	0.87	0.81	0.90
7/23/35	4,550,000	71	....	38.6	0.92	0.78	0.84
7/30/35	4,510,000	82	....	39.2	0.94	0.90	0.96
10/ 4/35	4,540,000	74	....	40.3	0.96	0.82	0.84

BIOPSY THIRTY-ONE DAYS AFTER TREATMENT

The stained smear was strikingly different from the previous one. Very few megaloblasts were seen. There were large numbers of normoblasts, many neutrophilic and eosinophilic myelocytes, and many young neutrophilic leukocytes and eosinophils. These cells seemed to be in normal proportions. An occasional megakaryocyte was seen.

As in the first biopsy, the marrow was completely cellular. The microscopic appearance is illustrated in figures 3 and 4. However, there was a very marked reduction in the number of immature red cells (megaloblasts), which were present only in small numbers in a few isolated areas. Some of these stained faintly pink. There were many more mature erythrocytes, and the number of normal nucleated red cells (normoblasts) was greater. The myelocytic elements were markedly increased above the number in the previous biopsy. There were many eosinophilic myelocytes and leukocytes and a great abundance of neutrophilic myelocytes and leukocytes. The megakaryocytes appeared to be about the same in number as before. The constituents were normal but the marrow was hyperplastic.

COMMENT

The material from the sternal marrow in this case indicates that in the macrocytic anemia of pregnancy the change is fundamentally the same as that in true pernicious anemia and in the macrocytic anemia of sprue.

During relapse, both in pernicious anemia and in sprue, the marrow is characterized by extensive cellularity, chiefly owing to megaloblastic proliferation with a diminution of normoblastic and myelocytic elements.[7] On the administration of liver extract this megaloblastic proliferation ceases and the normoblastic and myelocytic cells return to their normal ratios. The changes are somewhat proportional to the degree of the anemia; i. e., the more severe the anemia, the greater the megaloblastic hyperplasia. The sternal marrow in this case showed a similar megaloblastic hyperplasia with reduction in the normoblastic and granular elements and after therapy with liver extract showed a similar return to normal.

Strauss [4] has pointed out that in the macrocytic anemia of pregnancy there is a failure in the formation

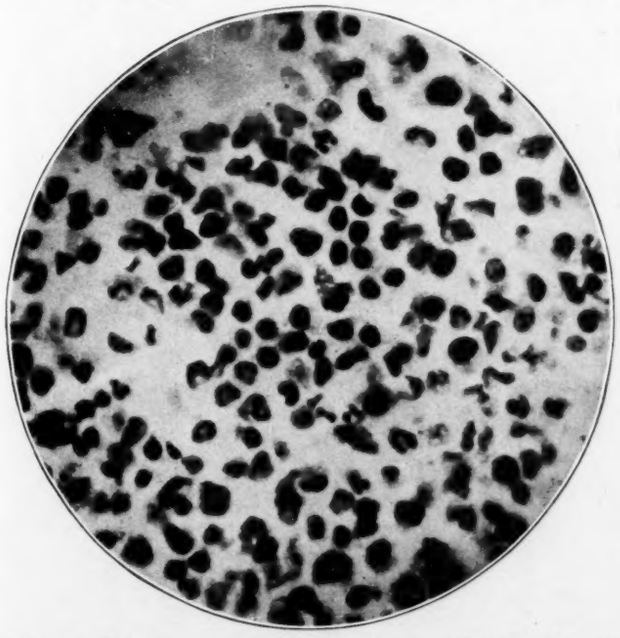

Fig. 4.—Field from figure 3 under higher magnification. Note the cluster of normoblasts just above the center. This is surrounded by myelocytes and young polymorphonuclear cells.

of antianemic factors similar to that in true pernicious anemia except that this failure is only temporary. This deficiency of antianemic factor may be the result of a lack either of the extrinsic factor in the diet or of the intrinsic factor in the gastric secretions. The diet in the case reported was deficient. Free hydrochloric acid was found both in the vomitus and in the gastric juice. Wintrobe and Shumacker [8] have recently suggested that the fetus in the development of its blood-forming tissues utilizes the antianemic factors elaborated by the mother. There is a definite macrocytosis of the red cells early in fetal life and, as term is reached, the cells approach normal size. If the amount of antianemic factor formed is too small (owing to insufficient amounts of either intrinsic or extrinsic factors as shown by Strauss), and this is all utilized by the fetus, the maternal blood forming tissues are inadequately supplied. The soil for the development of macrocytic anemia in the pregnant mother is thus prepared.

CONCLUSION

The bone marrow in a case of severe macrocytic anemia of pregnancy was studied. It was found, first, that the bone marrow resembles that seen in true pernicious anemia and in the macrocytic anemia of sprue during relapse and, secondly, that under the influence of specific therapy the cell constituents return to normal, as has been found when pernicious anemia and the macrocytic anemia of sprue are treated in a similar manner.

40 North Street.

7. Rhoads and Castle.[3] Peabody, F. W.: The Pathology of the Bone Marrow in Pernicious Anemia, Am. J. Path. **3**: 179-202 (May) 1927.

8. Wintrobe, M. M., and Shumacker, H. B., Jr.: Comparison of Hematopoiesis in the Fetus and During Recovery from Pernicious Anemia, Together with a Consideration of the Relationship of Fetal Hematopoiesis to Macrocytic Anemia of Pregnancy and Anemia in Infants, J. Clin. Investigation **14**: 837-852 (Nov.) 1935.

Clinical Notes, Suggestions and New Instruments

PACHYONYCHIA CONGENITA

ELMORE B. TAUBER, M.D.; LEON GOLDMAN, M.D., AND HARRY CLAASSEN, M.D., CINCINNATI

Pachyonychia congenita is a rare and uncommon condition. It is quite possible, however that many cases are overlooked, and they may be diagnosed as a simple congenital deformity of the nails. Most of the cases reported have been in children, for the reason that this condition is a particular form of a congenital abnormality.

This particular syndrome includes more than deformities of the finger nails. The title of Jadassohn and Lewandowsky's paper in 1906 "Keratosis Disseminata Circumscripta Tylomata and Keratosis Linguae" shows the essential features of this condition. Pachyonychia seems to be the constant symptom in all the cases reported. The others include bullae, palmar and plantar keratoses, leukoplakia, anomalies of the hair, follicular keratoses of an acneform type, especially on the knees and elbows, and dyskeratosis of the cornea. Heller [1] includes these changes under the term congenital dyskeratoses. Most of the cases seem to have been reported in males, chiefly Jews of Slavonic origin. Kumer and Loos [2] recently have studied a family of five generations and found thirty-four cases. From their cases and from a survey of the literature, they believe that pachyonychia congenita can be divided into three classes:

1. Type I: Symmetrical keratoses of hands and feet with follicular keratoses of body.
2. Type II: Symmetrical keratoses of hands and feet, follicular keratoses of body and leukokeratoses oris; this is the commonest type (typus Riehl).
3. Type III: Symmetrical keratoses, follicular keratoses of the body and corneal changes.

The recent reports in the American literature of Diasio,[3] Sohrweide [4] and Andrews [5] give excellent summaries of the

1. Heller, Julius: Die Krankheiten der Nagel, Handbuch der Haut- u. Geschlechtskrankeiten, Berlin, Julius Springer, 1926, vol. 13.
2. Kumer, L., and Loos, H. O.: Ueber Pachyonychia congenita (Typus Riehl), Wien. klin. Wchnschr. **6**: 174 (Feb. 8) 1935.
3. Diasio, F. A.: Pachyonychia Congenita Jadassohn, Arch. Dermat. & Syph. **30**: 218 (Aug.) 1934.
4. Sohrweide, A. W.: Pachyonychia Congenita, Arch. Dermat. & Syph. **32**: 370 (Sept.) 1935.
5. Andrews, G. C.: Pachyonychia Congenita, Arch. Dermat. & Syph. **33**: 183 (Jan.) 1936.

literature and add three new American cases. The case reported here combines all the features of pachyonychia congenita. This case was overlooked for a long time, being considered an atypical type of epidermolysis bullosa presenting nail deformities, chiefly because of the prominence of the bullae on the extremities.

REPORT OF CASE

The diagnosis in this case was made at the Mississippi Valley Central States Dermatological Conference in Cincinnati, Nov. 16, 1935. A Jewish girl, aged 20, had had since birth thickening and wrinkling of the nails of the hands and feet. Shortly after birth also some dryness of the skin was noted. In 1930, painful blisters appeared spontaneously over the soles of the feet and about the toe nails. About this time also the patient complained of some slight burning of the tongue. No blisters appeared on any other surface of the body or about the hands at any time. In 1932 the large toe nail on the left foot was removed surgically. Since 1930 the lesions on the feet have shown some slight improvement. Some of the large bullae have healed completely. The therapy has consisted of various mild local ointments, calcium and viosterol. The recent addition of the x-rays to the therapy, one erythema dose in divided doses, gave the patient great relief for a time.

Fig. 1.—Deformity of nails and thickening of derma.

Fig. 2.—Nails are deformed, thickened and wrinkled.

Examination of the patient shows that she is well developed, of the brunette type. The skin in general, especially over the extremities, is dry and scaly. There is a mild papulopustular acne of the face. The finger nails show wrinkling and thickening and, for the most part, are deformed completely. The toe nails exhibit the same changes, perhaps a litte more exaggerated. There is also a small amount of deformity visible on the great toe on the left. Scattered over the soles of both feet are large, oval, oozing areas covered with a red, smooth, moist base. These lesions have a foul odor. No inflammatory reaction has been noted about these lesions. There are similar lesions over both heels. On the lateral aspect of the right foot, and in the mesial aspect of the left foot, are thin, bluish-like scars representing healed areas. Sweating of the hands and feet is present, though not marked. Dermographism is not present. Nikolsky's sign, even on the plantar surfaces of the feet, is negative. The mouth is normal except for the tongue, which shows definite atrophy and whitish leukoplakial areas along the lateral portion. The buccal mucosa is normal. Palpation shows no thickening. Vaginal examination was not done. The remainder of the physical examination was negative. Repeated examinations were negative for fungi on the nails of the hands and feet. Smears of the oozing skin lesions show staphylococci.

Fig. 3.—Scars on side of right foot.

The patient has been under observation for some time and the nails show no definite improvement, but there has been some spontaneous healing of many of the small bullous lesions about the toes and of several of the larger lesions on the plantar surfaces of the feet. The patient believes that she got the greatest relief from roentgen therapy. At the present time she is wearing a special shoe and a protective cotton boot.

COMMENT

This case, then, showed pachyonychia, palmar and plantar keratoses, mucous membrane changes, and a generalized degree of mild ichthyosis. Our patient was disturbed, outside of cosmetic disfigurement, by the presence of the large, painful bullae, which so frequently became secondarily infected. During the period of observation of the patient we could watch the spontaneous healing of some of the bullae. From the pathogenesis of this condition, repeated trauma and friction seem to be a predisposing factor for the development of these bullae. With the institution of bed rest, elevation of the feet, and protection of the feet with cotton boots, and special shoes when walking, the patient secures some relief. Because of the presence of areas of leukoplakia in her mouth, the patient was cautioned about the importance of good dental care, the avoidance of tobacco, and any irritating articles in her diet. In the reports in the literature, no cases of malignancy superimposed on this condition have as yet been described.

19 West Seventh Street.

DIVERTICULUM OF THE PROSTATIC URETHRA WITH STONE

J. BAYARD CLARK, M.D., NEW YORK

Diverticula of the prostatic urethra, whether congenital or acquired, are exceedingly uncommon. A search of the literature reveals some half dozen cases that may be considered authentic.

A man, aged 53, a plumber, seen in November 1932, had been suffering acutely for several days from an overdistended bladder from which the urine was being expelled in drops and with great difficulty.

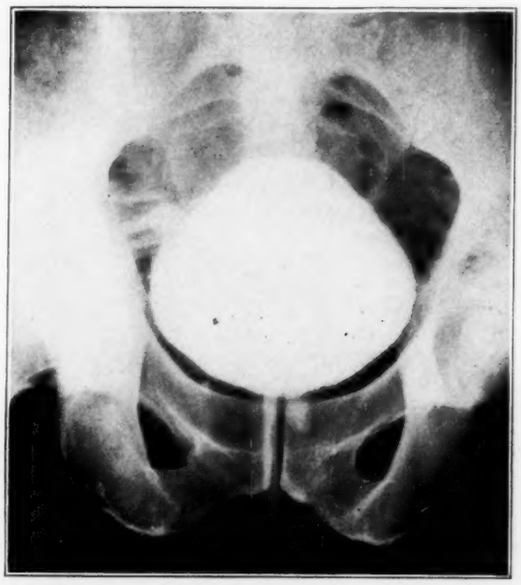

Fig. 1.—Cystogram showing extravesical position of stone.

The past history revealed nothing of interest to this report beyond a gonorrheal infection when he was about 20, which was followed by the characteristic story of stricture and periodic relief obtained by the ancient method of rapid expansion. He was removed to the hospital, where gradual dilation of the strictured urethra was instituted and a physical examination

Fig. 2.—Cystogram and urethrogram showing diverticulum of prostatic urethra.

revealed also an infected urine, a four plus Wassermann reaction and, according to the x-ray report, a stone in the bladder.

He was told on leaving the hospital that after the stricture had been sufficiently dilated and the syphilitic condition favorably influenced by treatment, the stone could be removed.

Since the patient was willing and cooperative, the treatment outlined was successfully carried out and in July 1934 a cystoscopic examination was made to check the roentgenographic observations. The examination showed a pale dull trabeculated bladder with two small apertures behind the right ureter mouth, but no stone.

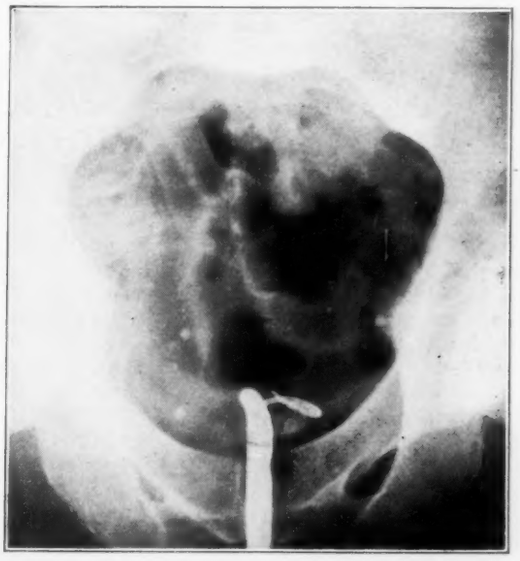

Fig. 3.—Urethroscope in prostatic urethra, with catheter passed into cavity of diverticulum.

A new set of stereoscopic roentgenograms was then made by another technician and the report was again made of stone in the bladder. Comparing these plates with the original pictures of one and one-half years before, nothing of interest was noted except the fact that the shadow had assumed a lengthwise instead of a transverse position.

Fig. 4.—Urethroscope in prostatic urethra, with flexible forceps passed into cavity of diverticulum.

After another negative check-up cystoscopy a number of cysto-urethrograms were made, which clearly revealed not only a small vesical diverticulum but a large prostatic urethral diverticulum. This group demonstrated the fact that the stone shadow was extravesical.

A urethroscopy was then done, which showed with brilliant clarity the orifice of the prostatic urethral diverticulum. This opening was about one-fourth inch in diameter and to the left of the colliculus and in the middle of the lateral sulcus, about half an inch below the level of the utricle and ejaculatory ducts. It was a simple matter to pass a ureteral catheter into this pouch for a distance of an inch or more.

On a subsequent day the patient was prepared for operation. This was preceded by a preliminary urethroscopy and an attempt to pass a flexible forceps into the diverticulum on the chance of clicking against the stone and possibly grasping and withdrawing it, thus obviating an open operation. This not succeeding, the urethra was opened, under spinal anesthesia, and with the finger the stone was easily milked out of the pouch and delivered. Digital examination revealed the diverticulum to be a patch pocket affair, which might easily have been removed had I not reasoned at the time that with restored urethral caliber and drainage this would be of no particular advantage.

The wound was healed and the patient was out of the hospital in a week, no better or worse than he was before, as neither the diverticulum nor the stone had ever given him any uneasiness.

The pathologist's report stated that the calculus was very hard, covered by a thin brown layer under which the center was chalky white. The outer layer was composed of cellular débris and urates. The core and main bulk were calcium carbonate with a little earthy phosphate.

As the pyuria did not entirely clear up during the succeeding two or three months, I decided to obliterate the wall of the sac by fulguration. This was very simply carried out in two sittings.

This diverticulum seemed clearly to be of the acquired type and it was occasioned by the urinary back pressure brought on by a distal urethral stricture. It seems probable also that the opening of a prostatic duct was the starting point of the diverticulum.

140 East Fifty-Fourth Street.

ELIMINATION OF CONFUSING GAS SHADOWS DURING CHOLECYSTOGRAPHY BY THE USE OF PITRESSIN

E. N. COLLINS, M.D., AND J. C. ROOT, M.D., CLEVELAND

The recent publication by K. I. Melville[1] on the "Pressor and Oxytocic Fraction of Posterior Pituitary Extract" prompts this preliminary report of our experience with the use of the pressor fraction of posterior pituitary extract (pitressin) in selected patients having cholecystographic examinations. In the course of 600 cholecystographic examinations, the use of this preparation was deemed advisable in seventy-three instances.

Fig. 1.—Cholecystogram made fourteen hours after oral administration of 5 Gm. of sodium tetraiodophenolphthalein.

Confusing densities in the right side of the abdomen, usually in the intestinal tract, constitute one of the most common handicaps to the accurate interpretation of cholecystograms, even though cleansing enemas are used as routine procedures. Not uncommonly, more gas is found in the intestinal tract after enemas have been used than was present before their administration. We have found the use of pitressin more effective than the use of enemas. It is a simpler procedure, requires less time, is less troublesome to the patient, particularly if not in a hospital, and has not been attended by any unpleasant reactions. It has precluded the necessity for reexaminations in numerous instances.

METHOD

Details of our routine cholecystographic examinations have been published elsewhere.[2] The single dose oral method is used, but in those instances in which nonvisualization occurs, a second dose of the dye has been given the second night even though studies of the stomach and small intestine following a barium sulfate meal have been made in the meantime. In the absence of cardiovascular contraindications, we now use one ampule (10 pressor units) of pitressin as a routine in cases in which confusing shadows in the right side of the abdomen interfere with the accurate interpretation of the cholecystograms. Additional cholecystograms are made from forty-five to sixty minutes after the injection of the drug. The increased tone of the intestinal tract after the administration of pitressin has permitted accurate study of the gallbladder area even though the colon contains barium sulfate. There has been no apparent interference with roentgen studies of the stomach and duodenum in which the barium sulfate meal is used or in examinations of the colon in which the barium sulfate enema is used on the same day on which pitressin is used. This preparation has not been used in patients having a systolic blood pressure below 100 mm. of mercury or in patients who have advanced hypertension or suspected coronary disease.

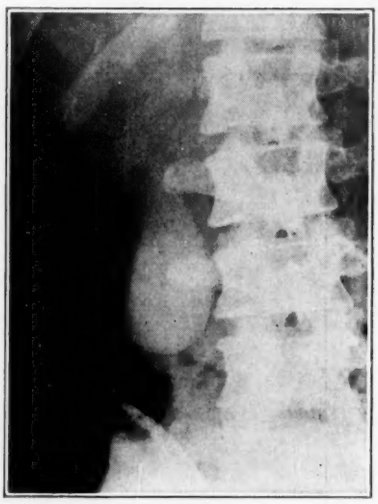

Fig. 2.—Cholecystogram made on same patient forty-five minutes after the intramuscular injection of pitressin.

RESULTS

Effective results were obtained in 82 per cent of the seventy-three cases (figs. 1 and 2); 75 per cent of these patients had one or more stools within thirty to forty-five minutes after the intramuscular (deltoid) injections of one ampule (10 pressor units) of pitressin. In practically all instances in which it was used, intestinal activity was evidenced by mild, cramplike sensations in the abdomen together with a feeling of expected defecation, if this did not actually occur.

No change in either the systolic or the diastolic blood pressure was encountered in 9 per cent of this series of seventy-three cases. In approximately 50 per cent there was a drop in blood pressure. A drop in both systolic and diastolic pressure occurred in 35 per cent, lowered systolic with no change in the diastolic in 7 per cent, lowered diastolic with no change in the systolic in 5 per cent. The average drop in systolic pressure was 15 mm. of mercury, and the average drop in the diastolic pressure was 14 mm. of mercury.

In 36 per cent of the seventy-three cases there was an increase in blood pressure. This increase occurred in both systolic and diastolic pressure in 17 per cent, in systolic with no change in the diastolic pressure in 16 per cent, and in systolic with lowered diastolic pressure in 2 per cent. The average rise in systolic pressure was 10 mm. of mercury and the average rise in diastolic pressure was 10 mm. of mercury.

In those instances in which the blood pressure was taken every five minutes for one hour, there was a gradual and progressive fall in both the systolic and the diastolic blood pressure during the first thirty or forty minutes, and then a gradual and progressive rise in both until the end of the hour, but in no instance was the terminal reading as high as that before the administration of pitressin.

From the Cleveland Clinic.

1. Melville, K. I.: Pressor and Oxytocic Fractions of Posterior Pituitary Extract, J. A. M. A. **106**: 102-105 (Jan. 11) 1936.

2. Collins, E. N.: Cholecystography, Cleveland Clinic Quarterly **2**: 16-22 (July) 1935.

THE TREATMENT OF A LUNG ABSCESS DUE TO BACILLUS COLI WITH A LYTIC FILTRATE

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Numerous reports on bacteriophage therapy in human infections have been made with some apparently favorable and some poor results. A critical review of this form of therapy has been published by Eaton and Bayne-Jones,[1] who call attention to the more plausible and possible means of application of the lytic principle in vivo. This review indicates from the experimental and scientific points of view those cases in which such therapy is at least warranted. Eaton and Bayne-Jones called attention to the specificity of the agent for the organism producing the pathologic condition, the inhibitory action of body fluids, the species susceptibility of the organism in in vivo experimental infections, and the mode of application. They also state that "it is not certain whether the bacteriophage itself or other constituents of the lytic filtrates produce the effects observed," when an improvement in a disease process is noticed.

In the following case,[2] as a measure of last resort, bacteriophage therapy was tried, particularly since the conditions for its application were apparently suitable:

N. S., a woman, aged 22, who had previously been in excellent health, suddenly experienced a severe diffuse abdominal pain, Aug. 5, 1934, which was mistaken for menstrual cramps. During the following two days enemas were given but with no relief. On the third day the patient's condition became critical and she was rushed to the Chambersburg (Pa.) Hospital, where an emergency operation was performed by Dr. L. H. Seaton. When the abdomen was opened a gangrenous appendix with generalized peritonitis was disclosed. The remainder of the appendix was removed and drains were inserted. The postoperative course was stormy and the patient's condition was indeed grave. The temperature was hectic, ranging from 98 to 105 F. with intermittent chills. Owing to the general peritonitis, hot packs were used to localize the inflammatory changes in the lower right quadrant. These hot packs were used continuously for six weeks along with daily saline irrigations through the midline incision. Thick purulent contents were obtained throughout this period.

August 29 the patient complained of a sudden severe pain under the left shoulder blade, which was first interpreted as pleurisy, and the clinical signs were those of pleurisy. There were no signs of an infection of the upper respiratory tract such as a sore throat or the ordinary common cold. The patient's chest was strapped with resulting temporary relief. For one week after the strapping the pain was usually dull, but there were occasional mild exacerbations. However, at one time after an excruciating pain, examination disclosed massive collapse of the left lung. During the subsequent few days slight signs of partial return of pulmonary function were observed, but relapse followed. Clinical and x-ray signs of effusion developed. Aspiration was performed September 12 and 500 cc. of very heavy purulent material with a foul and typical colon odor was obtained. A culture of the pus at this time yielded only Bacillus coli. Three days later, because the material was too thick to be aspirated, rib resection was done with a virtual gush of pus. A bronchial fistula developed shortly after the rib resection and the patient was expectorating the same kind of material as that which drained from the resection wound. The appearance of the area around the resection opening was necrotic and "mossy" and failed to show any improvement on local irrigations with 1,000 cc. of saline solution twice a day. Digital examination through the resection wound disclosed many walled off abscesses surrounded by necrotic tissue. In view of the hectic fever and the general condition, which indicated toxic absorption, an especially resistant abscess which failed to open was incised by an approach between the ribs just above the rib resection. A drain was inserted and in a few days healing took place.

Since the appearance of the resection wound showed advancing necrosis, and continued drainage of from 1 to 2 liters of pus seemed to add to the rapidity of necrosis, the outlook was altogether discouraging. At this time (September 16) we learned of the patient's condition and obtained Dr. Seaton's ready permission to try bacteriophage therapy. The decision to use bacteriophage was made for the following reasons: 1. The apparent invader was a colon bacillus. 2. One of us had at hand a polyvalent colon lytic filtrate, which could be tested for specificity and potency. 3. The site of invasion was local, and inhibitory body fluids could be diluted by salt irrigation, even though pus supposedly has little action on colon bacillus bacteriophage.[3] 4. The type of pathologic condition presented a means whereby concentrated bacteriophage could be retained in the chest and wet dressings of bacteriophage applied to the necrotic resection wound.

A second sample of pus was collected at this time (September 16) and another pure culture of colon bacillus isolated which was fairly readily lysed by a bacteriophage that was active against various strains of B. coli isolated from other sources. Within two days the activity of the bacteriophage was increased to a titer of 1 to 200,000,000 against the specific organism, completely sterilizing young cloudy broth cultures within two hours.

After a cutaneous test September 20 of 0.1 cc. of the lytic filtrate twelve hours previously had given little or no reaction, and after irrigating the chest with 1 liter of physiologic solution of sodium chloride, 1 ounce (30 cc.) of the phage was instilled and allowed to remain for two hours. This was followed by saline irrigation and the wound covered by a dressing saturated with the bacteriophage. The following day the observation was made that the discharge had become thin and watery and had lost its offensive character for the first time since the resection was done five days before, even though saline irrigations had been administered twice daily during this five day period. A second and equally remarkable change had occurred at the resection wound itself, where the mossy, necrotic character was entirely changed to a clean, fresh, healthy appearing incision. Since the first use of bacteriophage had given such excellent results, a second application seemed indicated, and therefore the procedure was repeated. However, within ten minutes a violent generalized rose-colored urticaria appeared and the patient complained of nausea and vomited. The bacteriophage was drained immediately and the chest irrigated with large quantities of saline solution. Epinephrine was administered and the eruption cleared within an hour. The patient, among others known to one of the authors, reacted to the epinephrine with a thready pulse and cold and clammy skin. The epinephrine reaction, however, completely subsided in the course of another hour. After such a marked allergic reaction to the bacteriophage had occurred it was decided to discontinue bacteriophage instillations and continue only with saline irrigations and external dressings saturated with bacteriophage. The dressings of bacteriophage were continued for a week along with irrigations of physiologic solution of sodium chloride. Throughout this period the resection wound maintained its healthy normal appearance and the discharge remained clear, watery and nonodorous. The temperature reached 102.2 F. each day for the thirteen days prior to the urticarial reaction. On that day the reading was 103.2 F. after the reaction. After this reaction the temperature did not go above 102.2 F.

The patient's general condition was remarkably improved and within six weeks she was able to leave the hospital. The appendiceal wound had healed but the fever, less hectic in type, continued as well as the thin nonodorous drainage. At home the fever gradually subsided as well as the drainage, and healing was practically complete toward the end of December.

At the present time the patient has regained her weight (65 to 120 pounds, or 29.5 to 54.4 Kg.) and is perfectly healthy and has resumed her occupation. Interestingly enough, the loss of hair that had occurred during the continued and prolonged febrile illness has entirely regenerated.

SUMMARY

A ruptured appendix with peritonitis was followed by an infected embolus, which produced a massive collapse of the

1. Eaton, M. D., and Bayne-Jones, Stanhope: Bacteriophage Therapy: Review of the Principles and Results of the Use of Bacteriophage in the Treatment of Infections, J. A. M. A. **103**: 1769 (Dec. 8) 1847, (Dec. 15), (Dec. 22) 1934.

2. We are indebted to Dr. L. H. Seaton, Chambersburg, Pa., for allowing us to report this case.

3. Appelbaum, Martha, and MacNeal, W. J.: Influence of Blood and Exudates on the Action of Bacteriophage Against Colon Bacillus, J. Infect. Dis. **50**: 269-276 (March) 1932.

left lung, followed by empyema, all resulting from the colon bacillus. The patient's life was despaired of and it was agreed to use any measure that might offer some hope. Bacteriophage therapy was resorted to, especially since the conditions for its application seemed suitable. The procedure adopted apparently played an important rôle in the patient's recovery because of her immediate change after the application of the filtrate, whereas surgical measures promoting drainage, as well as repeated irrigations with physiologic solution of sodium chloride, did not seem to control the necrosis and suppuration in the chest. Whether the bacteriophage acted as a specific or indirectly as a synergist to antibody formation cannot be stated. In addition, the progression of the infectious process gave no time for trial and error methods with plain broths, since we had at hand a liter of extremely potent specific lytic filtrate.

If any conclusions can be drawn, the rapidity of clearing (twenty-four hours) in a chronic process would seem to suggest specificity rather than marked antibody formation.

1013 North Charles Street.

Special Clinical Article

TREATMENT OF ATROPHIC ARTHRITIS

CLINICAL LECTURE AT KANSAS CITY SESSION

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AND
DONALD F. HILL, M.D.
TUCSON, ARIZ.

Atrophic arthritis is a constitutional disease which manifests itself as a profound systemic disturbance and by a chronic deforming polyarthritis. It should be clearly understood in the beginning that atrophic arthritis is a disease without a known single specific etiologic agent and likewise there is no single specific cure. In a previous paper one of us [1] reported carefully controlled experiments with various types of therapy. This consisted of placing a large group of patients with atrophic arthritis on a general program which included dietary correction, bowel management, prevention and correction of deformity, rest, exercise, general physical therapy and climatic residence. After a control period of several months one group had foci of infection removed, another group was given blood transfusions, the third group was given vaccine of various types, and the remainder were given special forms of heliotherapy. Progress was observed over periods ranging from months to years. The results of this study emphasized the nonspecificity of any single therapeutic agent used and the necessity of using a comprehensive program of management. Because of this lack of a specific cure the medical profession, much like the Children of Israel, is prone to wander after strange gods and attempt first one form of treatment and then another in the hope of finding an easy and miraculous remedy. While it is true that no specific and certain cure is yet available for this unhappy disease, enough is now known regarding its manifestations and treatment to prevent most of the deformities and to restore a large majority of these patients to useful lives.

There are undoubtedly multiple factors involved in the etiology of atrophic arthritis. Heredity, infection, climate, body types, fatigue, trauma, exposure, nervous strain, circulatory disturbance, gastro-intestinal dysfunction, endocrine disorders, and no doubt many other factors play some rôle as etiologic agents. It is because of the many sided constitutional manifestations of this chronic disease that treatment, to be effective, in our present state of knowledge must depend not on one single agent but on a combined program of treatment in which every available therapeutic aid is utilized.

It should be remembered that atrophic arthritis may be initiated with all the acuteness of rheumatic fever, or it may begin most insidiously with very few symptoms. The disease may progress rapidly to crippling deformity or progress but slowly with little change from year to year. Because of these wide variations in onset and course, therapeutic measures must be selected for each individual and in relation to the acuteness of the disease. To simplify the beginning of treatment, we have adopted the plan of treating each new patient as an acute case and then, under observation, as rapidly as possible advance him to the degree of activity for which he is ready. Before discussing the various therapeutic aids in detail, we present a case history illustrating the therapeutic procedures used in the different phases of the disease:

REPORT OF CASE

An unmarried woman, aged 36, presented as the chief complaints (1) pain, swelling, deformity and limitation of motion in both hands, wrists, elbows, shoulders, knees, ankles and feet of two years' duration; (2) belching, nausea and pain in the right upper quadrant; (3) weight loss of 29 pounds (13 Kg.) during the past year.

The positive conditions found on physical examination were (1) malnutrition (weight 81 pounds, or 36.7 Kg.); (2) anemia; (3) fever of 99.5 to 100.5 F. daily; (4) persistent tenderness over the gallbladder area; (5) both shoulders painful and motion limited to 50 per cent; both elbows were flexed and extremely painful; both hips showed a flexion contraction with extension limited to 140 degrees; the knees were hot and swollen, with extension limited to 145 degrees; the ankles and feet were swollen, painful and useless.

Laboratory examination revealed 4,100,000 red blood corpuscles; hemoglobin, 10.9 Gm., 79 per cent (Sahli); white blood corpuscles 6,500; sedimentation of red blood corpuscles 116 mm. in one hour (Westergren). Stomach analysis revealed no free hydrochloric acid. Gallbladder drainage was four plus pus. Culture from the results of drainage showed a green producing streptococcus and enterococcus.

Roentgen examination revealed marked demineralization of the bones in the hands compared with a normal hand. Both knees showed increased density of soft tissue but there was no demonstrable erosion of cartilage. The gallbladder failed to fill with dye.

Treatment in the acute phase consisted of:

1. Bed rest.
2. A semibland, high vitamin and high calory diet with no limitation of starches.
3. Dilute hydrochloric acid with meals.
4. Tincture of belladonna to tolerance, three times daily before meals.
5. Hot wet packs to the abdomen after meals.
6. Bowel regulation without cathartics.
7. Gallbladder drainage once weekly.
8. A firm, non-sag bed.
9. Plaster shells to both legs as posterior splints.
10. Cockup splints for the wrists.
11. Corrective exercises. Every joint was assisted through its full range of painless motion daily. Gradually decrease of assistive work and increase of active exercises were carried out.
12. Acetylsalicylic acid for relief of pain.
13. Transfusions, three of 250 cc. each one week apart.
14. Minute doses of vaccine subcutaneously at weekly intervals (autogenous from gallbladder and strongly skin positive).
15. General climatic advantage and air baths. No direct sun.

Read in the General Scientific Meetings at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 11, 1936.

1. Holbrook, W. P.: Evaluation of Therapy in Chronic Atrophic Arthritis, Ann. Int. Med. 7: 457 (Oct.) 1933.

At the end of four months the patient had gained only 10 pounds (4.5 Kg.). The hemoglobin was up, however, from 79 to 97 and the acute phase had partially subsided. Flexion contractions of the hips and knees were only partially corrected and severe pain was continuing. The following routine was then carried out:

1. Under general anesthesia both hips and both knees were manipulated and completely straightened.
2. Plaster casts were applied to both legs and allowed to remain in place for one week. Casts were then removed and used as posterior shells.
3. Corrective and assistive exercises of the legs were reinstituted. Emphasis was placed on the extensor groups and on foot exercises.
4. Light massage was started and heat was applied to the muscles as tolerated.
5. Heliotherapy, local and general was given.

At the end of ten months the patient had gained 20 pounds (9 Kg.) and no longer had fever. The blood count was normal. The hips and knees were perfectly straight and not painful or swollen. Muscle tone was excellent from bed exercises. The patient was able to move about on the bed, moving all the joints freely without pain. The following routine was then begun:

1. The patient was allowed to stand on her feet with (*a*) corrective shoes with supports, (*b*) ace bandages to the knees and (*c*) properly fitted crutches.
2. The patient was instructed in correct posture and the use of crutches as walking was begun.
3. All corrective exercises were increased and a gradual increase in walking was permitted.
4. The diet was changed to a high vitamin diet, with limitation of concentrated starches.

The patient has been walking for nine months with no recurrence of knee or hip pain. There is no residual swelling or deformity. In the course of her management the patient became free from gallbladder symptoms and the laboratory and x-ray examinations showed a return to normal conditions.

THERAPEUTIC PROCEDURES

General.—From the case history it will be seen that the treatment of atrophic arthritis can be clearly divided into two parts, constitutional and local. Every effort should be made by any and all proved methods to correct the constitutional factors and thus arrest the progress of the disease. The local treatment of the joints consists of prevention and correction of deformity with maintenance of muscle tone during the entire period of the disease so that no matter how long the disease may remain active the patient will retain the maximum joint motion with the minimum deformity.

No attempt will be made to review the literature on therapeutic procedures, as this has recently been done most completely by Hench, Bauer and their co-workers.[2]

Diet and Nutrition.—Nearly every type of diet has been tried in atrophic arthritis. It is our experience that the patient does best on that diet which would be selected for him if he had no arthritis. If the patient is underweight, a full high calory high vitamin diet with no limitation of starches is given. A bland, semibland or high roughage diet is used, according to the patient's individual needs. Obese patients are given low starch and low fat diets for reduction of weight. In short, the patient's general condition should be considered, his gastro-intestinal tract studied, and a suitable diet prescribed. When the patient has gained adequate weight we then usually order for him a high vitamin weight maintaining diet, low in concentrated starches. This is done not because the starch is harmful but because bread, potato and pastry eaters will seldom eat enough food containing adequate vitamins and minerals.

Bowel Management.—Many patients with chronic arthritis worry constantly regarding toxic poisoning from the colon. Physicians in this country in particular have seized on the toxic colon as a ready explanation for the persistent arthritis after the patient has been relieved of all surgically removable organs. It is true that the colon may be the seat of chronic infection, but there is little justification for the many appliances, irrigations and antiseptics used in the colon to combat "toxic poisoning." Adequate intestinal elimination is important and should be secured without the use of drastic cathartics. A simple lubricant, proper diet, abdominal exercises, massage and habit time are usually sufficient. Tincture of belladonna and hot wet packs to the abdomen after meals are also of much help in selected cases. Local conditions such as rectal spasm, fissure and hemorrhoids should, of course, be corrected.

Removal of Foci of Infection.—If removal of foci is to be of value in the treatment of this disease, it should be accomplished early. It is during this phase, however, that the procedure may be most hazardous. Many patients who are undernourished, anemic and fatigued experience an acute exacerbation and spread of the diesase following removal of foci. In our experience this has been particularly true of infected tonsils. When infected teeth or tonsils are removed, the infection itself is not removed at once but more rapidly invades the surrounding tissue for a time, thus giving the patient a sudden overload of infection. Every attempt should be made to raise the patient's level of resistance before submitting him to the shock of a surgical procedure and an overload of infection as well. We frequently precede such operations with a blood transfusion and, if it is feasible, a period of weight gain and rest. In far advanced arthritis of long duration with joint destruction, foci should be removed only because of general considerations and not with the hope of arresting the disease. Finally, the removal of foci of infection will benefit but few patients unless it is carried out only as a part of a comprehensive plan of management.

Vaccines.—No single phase of treatment is more controversial than the use of vaccine in atrophic arthritis. Scarcely a year goes by that some new vaccine does not make its appearance. Autogenous and stock vaccines, usually made from some particular strain of the streptococcus, are advocated by the majority of workers using vaccine. However, there is no unanimity of opinion among users of vaccine regarding the particular strain of streptococcus used or the preparation and administration of the antigen. In previous papers we [3] have described a series of patients on vaccine therapy compared with control groups. Our results failed to show any better results in the group receiving vaccine than in the groups not receiving it. In spite of this unconvincing evidence in its favor, we have continued to use autogenous vaccines showing skin positive reactions in a small percentage of our patients. The vaccine is given in minute doses intravenously or subcutaneously. We believe but cannot prove that some patients are benefited, at least psychically, by its use. Until some organism is proved to be the specific etiologic agent for atrophic arthritis, it is not surprising

2. Hench, P. S.; Bauer, Walter; Fletcher, A. A.; Ghrist, David; Hall, Francis, and White, Preston: The Present Status of the Problem of "Rheumatism": A Review of Recent American and English Literature on "Rheumatism" and Arthritis, Ann. Int. Med. **8**: 1315 (April), 1495 (May), 1673 (June) 1935; **9**: 883 (Jan.) 1936.

3. Holbrook,[1] Cox, Katharine, E., and Hill, D. F.: Chronic Arthritis: Serologic and Clinical Studies, Arch. Int. Med. **54**: 27-39 (July) 1934.

that stock vaccines prepared from a great variety of bacteria have failed to show specific results in treatment. We continue to condemn the indiscriminate use of vaccine and its use as a specific, as this results in neglect of the basic constitutional management so essential in the treatment of every patient with atrophic arthritis.

Transfusions.—We have given a large number of blood transfusions to patients with atrophic arthritis. The first two transfusions are usually given one week apart. At the end of a month, if improvement has not been definite, additional transfusions are given. Patients with relatively acute or subacute arthritis respond well and often dramatically. The appetite improves, the red blood count and hemoglobin rise, the low grade fever usually disappears and joint swellings diminish. The very chronic disease with far advanced joint destruction may be somewhat improved symptomatically but no striking results are seen in this group. In using several donors on the same patient we have often observed that the blood from one donor would regularly produce a better response than the blood from the other donors. Further study in the selection of donors is indicated. Blood transfusions are in no sense a specific cure but in our experience they have been an extremely valuable adjunct in building up the patient and arresting the disease.

Medicines.—Acetylsalicylic acid for the control of pain, iron in correcting anemia, and arsenic (as solution of potassium arsenite or neoarsphenamine) have a rightful place in the list of medicines used.

Sulfur injections and the use of gold salts have been disappointing, in our experience.

Dilute hydrochloric acid provides better digestion and nutrition in the patient with low or absent gastric acid.

Vitamin A in the form of cod liver oil is given almost as a routine.

Many forms of vitamin B are available and we usually prescribe it in the form of wheat germ or yeast.

We have given crystalline vitamin C intravenously in 150 mg. doses three times weekly to a small group of patients over a period of several months without observing any striking benefit.

A series of twenty-five patients in various stages of atrophic arthritis were given concentrated vitamin D in doses of from 200,000 to 350,000 units daily. All these patients had a control period of treatment of several months before beginning the vitamin D. This has been administered now over a period of four months. Five patients have reported less pain and four have had marked drops in their sedimentation rate. Sufficient time has not elapsed to evaluate this method of therapy.

Fever Therapy.—In the treatment of atrophic arthritis, fever therapy has been disappointing. In a series of fifty patients who were given fever treatments, no patient was rendered symptom free. These patients received from four to seven treatments each and the temperature was maintained above 104 F. for five or six hours. Approximately 25 per cent of these patients were temporarily improved. This is in accord with the recent reports from other workers.

Foreign Protein Injections.—Injections of typhoid vaccine intravenously and various nonspecific proteins have been used for a number of years in the treatment of arthritis. We have discontinued all such injections, particularly the protein shock therapy, except in the occasional young well nourished individual whose disease is not acute. We have seen a number of patients who have had a rapid spread of the disease following this type of therapy.

General Physical Therapy.—There is at present a widespread belief that a department of physical therapy must be equipped with several kinds of lights, bakers, a variety of electrical appliances, paraffin baths, and other appliances. It is true that most of this apparatus can be used with some benefit to the patient psychologically and physically. However, 85 per cent of our physical therapy requires only a thoroughly trained personnel. Postural correction, assistive exercises, and the teaching of corrective exercises constitute the major work in the physical therapy of atrophic arthritis. All this can be done with no apparatus at all. Motion should be limited to within the painless arc but pushed to the limit with some assistance. All exercises must be done slowly and exactly with a rest interval. The maintenance of muscle tone and of maximum joint motion depends on wisely directed exercise daily. Massage and heat is a much abused procedure. If used vigorously in the early stages of the disease, increased pain and soreness will result. If used wisely over muscles in the more chronic phase, it relieves muscle spasm and increases circulation. Active exercises of muscle groups are much more effectual and as soon as the patient is able replaces massage. No attempt will be made to discuss the various mechanical and electrical appliances used in the physical therapy of atrophic arthritis, as they are too numerous. Finally, it should be emphasized again that joint motion and muscle tone can best be secured by teaching the patient to help himself.

Prevention and Correction of Deformity.—Flexion contractions and deformities that occur in this disease are making thousands of invalids yearly. In every patient with atrophic arthritis the possibility of residual deformity in all involved joints should be anticipated and prevented. If flexion contractions are present, they should be corrected at the earliest possible moment. The prevention of such deformities may be accomplished quite easily but their correction is more difficult. The deformities usually occur in flexion, particularly in the knees, hips, elbows, wrists and hands. Unfortunately, the patient develops the worst possible bodily posture. He lies in a bed that sags, and he places pillows under his knees and head. The hands, wrists and elbows lie flexed across the body. Such flexion deformities are increased if walking is allowed with bent knees or hips.

The patient should be at rest on a bed that does not sag. During the day he must spend several periods in bed without pillows and with all joints fully extended. If pain and muscle spasm interfere, plaster shells as posterior splints for the legs should be used. All painful joints should be splinted so far as is possible in extension. Group muscle exercises of the extensors should be given. Chest, abdominal and postural exercises must be stressed and practiced daily. Every joint must be moved through its full range of painless motion at least once daily. It is entirely possible in the treatment of this disease for the patient to attain the muscular development of an athlete by bed exercises alone. It is essential that posture be correct, knees straight, and sufficient muscle strength be developed before the patient is allowed to begin walking. Correctly fitted shoes with good arch supports, ace ban-

dages to the knees, and a pair of crutches properly used will often make walking a painless and useful exercise instead of torture. The advice so often given to patients with bent and painful knees to keep walking no matter how much it hurts is the shortest route to the wheel chair. It is especially important that no weight be borne on a bent or painful knee. This only results in further damage to inflamed joint structures and is often the cause of irreparable damage. If flexion contractions of the knees or hips are present, a series of plaster shells will often provide sufficient relaxation to secure a correction of the deformity. Failure to secure complete correction may be due to an adherent capsule or adhesions. If by the use of posterior splints (relaxation casts) and physical therapy the knees are not promptly straightened in one or two months, further measures are essential and the following procedure is carried out: With the patient under deep anesthesia to avoid voluntary muscle spasm, the joints are carefully manipulated and the deformities corrected. Occasionally more than one manipulation is necessary for complete correction. The technic of the manipulation will not be discussed at this time. Plaster casts are applied and allowed to remain approximately one week, at which time the cast is spread and the leg taken out for assistive exercises. The casts are then used as posterior splints. Within a few weeks after straightening the legs we have been astounded to find a foot or knee that had been cold, clammy and swollen with the swelling gone and the extremity quite warm. In flexion contractions of the knee, manipulation alone cannot always be done safely to secure a full correction of the deformity. In such cases posterior capsular adhesions are usually present or there is marked shortening of the ligaments and fascia. A posterior capsulotomy [4] by the Wilson method is done immediately if the manipulation fails and while the patient is still under anesthesia. The treatment following capsulotomy is identical to that following manipulation and does not delay the postoperative assistive exercises. It has been the general impression that manipulation of joints should under no circumstances be attempted during the active phase of the disease. However, many of these patients are in an active phase of the disease for months or years. It is true that the patient should first be improved constitutionally if possible, but recent experience has convinced us that the hazard of waiting longer than a few weeks or months is far greater than the hazard of straightening a joint in any stage of activity.

During the past two years we have done fifty-seven such manipulations of the large joints after careful control periods of treatment. We shall report on nineteen of these patients because they were under observation for from six months to seven years and had been refractory to all conservative attempts to correct their deformities. All had flexion contractions of the knees or knees and hips and were unable to walk. This group seemed destined to remain hopeless cripples. Seventeen of the nineteen patients improved from the standpoint of pain, swelling and circulation. Fourteen of the nineteen patients are now walking with straight legs. Three have straight legs but are not yet far enough advanced in muscle training to begin walking. Two have shown no marked improvement and probably will never walk, owing to far advanced joint destruction. The average duration of the flexion contractions was two and one-half years. The oldest flexion contraction was in a woman, aged 65, who had had hip and knee flexion contraction of seven years' duration with considerable cartilage destruction in both knees and hips. She is now able to walk with crutches. Posterior capsulotomy was necessary in six of the knees manipulated to complete the straightening procedure. When capsulotomy is done, manipulation should be done with it to correct subluxation and restore full extension. Most knees, following correction of flexion contractions, maintain motion and rapidly develop muscle tone. Occasionally one tends to become fixed in extension and then several subsequent anesthesias may be necessary to restore flexion. The hip flexion contractures are more difficult to correct and maintain because of a marked associated lumbar lordosis. Usually a few months on a hard bed after the manipulation will prevent the return of this disability when walking is begun. Many of the other joints, particularly the shoulders and feet, may be mobilized by careful manipulation.

Correction of joint deformity by manipulation is in no sense a cure for arthritis, but wisely combined with a comprehensive program of treatment it is invaluable in relief of pain, increase in circulation, and in returning many bed invalids to useful lives. Manipulation of the joints should not be attempted unless one is prepared to give a full program of carefully supervised follow-up treatment over a period of months.

There are undoubtedly hazards in this procedure, such as fracturing demineralized bones, rupturing ligaments, damage to cartilage and injury to blood vessels. If the manipulation is carried out carefully, it is our belief that it can be done with relative safety, as we have had no complications in the group we have treated. Finally, it is essential to emphasize that flexion deformity should be corrected early, beginning with the easiest and simplest method but progressing rapidly to whatever measure is necessary to effect a correction of the deformity.

Climate.—We have observed a large number of patients with atrophic arthritis during their residence on the Tucson desert. Acute exacerbations of the disease are exceedingly rare. The incidence of atrophic arthritis among native whites and Indians is extremely low. Rheumatic fever is a medical curiosity. A large group of children have been sent to the Tucson desert because of recurrent rheumatic fever. Of this group not a single child has had a frank recrudescence of the disease during the past eight years of observation. Activity of rheumatic fever has been evaluated by means of fever, white count, sedimentation of the red cells, electrocardiogram and clinical observation. Again it must be said that ideal climate is not a panacea for atrophic arthritis, but when utilized as a part of the constitutional management there is little doubt that it influences the disease favorably.

COMMENT

We believe that the successful treatment of these patients with atrophic arthritis is more satisfactorily carried out in a warm, dry climate. Most of our patients have traveled long distances for climatic change and are at least in some measure prepared financially to provide themselves with adequate care. We also are aware that thousands of patients not only cannot afford climatic change but cannot provide adequate medical and nursing care at home. For this underprivileged group, the establishment of hospitals and teaching cen-

4. We are indebted to Dr. J. B. Littlefield of Tucson for his cooperation in doing the capsulotomies reported in this paper.

ters devoted to the care of arthritis, much as it has been done for tuberculosis, appears to be the only solution. A survey of the state of Massachusetts recently revealed that there were more people suffering from chronic rheumatism than from tuberculosis, heart disease and cancer combined. Tuberculosis, cancer and heart disease may cause death, but unchecked arthritis leaves its victims a lifetime of crippling deformity. Almost every state and county has special institutions for the treatment of tuberculosis, yet not a single state or county in this country has such a hospital for arthritis.

Finally, a specific cure for atrophic arthritis is not yet available. It is not our intention to sound a pessimistic note, for we have every reason to be most optimistic regarding the results to be secured when adequate treatment can be obtained. We do believe, however, that it is time for the medical profession as well as the victims of this disease to recognize that there is no easy way. The wasting of time and money on measures of doubtful value should be stopped and all time and attention centered on the few simple measures of proved worth. A striking advance in the therapy of this disease can occur if physicians will stop treating these patients half-heartedly with each new remedy as it appears and frankly tell their patients what the problem of adequate treatment includes.

SUMMARY

Atrophic arthritis is a disease without a known single specific etiologic agent and likewise there is no single specific cure. Being such, and admittedly a constitutional disease, emphasis is placed on the necessity of a comprehensive program of treatment, utilizing accepted methods to correct all factors at fault and to build up the patient's general condition to arrest the disease.

Of equal importance is the prevention and correction of deformities. With proper and continuous care from the onset of the disease there should be very few deformities requiring special treatment.

Nineteen patients with flexion contractions of knees or knees and hips averaging two and one-half years in duration were submitted to manipulation after conservative measures had failed to correct the deformities. Fourteen of these patients are now walking with straight legs.

4 East Congress Street.

Medicine and Machinery.—Today we are witnessing the apotheosis of the machine in human life and it is not surprising to find that medicine, like other spheres of action, is being mechanized. The public has come to believe that machinery is revolutionizing the healing art and is dispensing with the need for human judgment. It is true that the introduction of instruments of precision into medicine has been of great service but the interpretation of the results obtained by them in the individual case still demands wisdom and experience on the part of the doctor. Where the machine is greater than the man the patient perishes. A large section of the public does not understand this. It has such an incorrigible love for apparatus, and what it produces, that it hailed with acclamation a box of gadgets, constructed in defiance of all scientific principles, which claimed to hand out an exact diagnosis, and even the appropriate treatment, and thus make the application of so fallible a thing as the human mind unnecessary. Failing the reduction of medicine to machinery, the public seeks salvation in the specialist and the expert; and the more apparatus, and the more complicated, employed by these, the greater its confidence.—Lord Horder: The Clinician's Function in Medicine, *New York State J. Med.* **36**:843 (June 1) 1936.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

USE OF THE TERMS "STERILE," "STERILIZE" AND "STERILIZATION"

In an official communication from the Food and Drug Administration of the U. S. Department of Agriculture, the Council was asked to express an advisory opinion as to the use of the terms "sterile," "sterilize" and "sterilization," especially when it appears on the labels of agents used "for sterilization of the skin."

The Council adopted the following statement and authorized its transmission to the Food and Drug Administration:

The Council on Pharmacy and Chemistry has formally gone on record as disapproving of the use of the terms "sterile," "sterilize" and "sterilization" in a bacteriologic sense other than in their correct scientific significance; i. e., meaning the absence or destruction of all micro-organisms. These terms are not relative and to permit their use in a relative sense not only is incorrect but opens the way to abuse and misunderstanding. It is questionable that there are any chemical agents tolerated by the skin which will produce sterility, although there are some which will reduce the bacterial flora of the skin to such an extent that they may properly be described as disinfecting agents. For such agents there is no objection to the use of the terms "disinfecting," "bactericidal" and "bacteriostatic."

Reference was also made to the decision of the Committee on Foods, which is as follows:

USE OF TERMS "STERILE," "STERILIZED" AND "STERILIZATION"

The terms *sterile, sterilized* and *sterilization* shall be used in food advertising in their correct scientific significance only. Foods processed to be free of pathogenic organisms or to keep sound and wholesome are not necessarily sterile, i. e., free from viable micro-organisms.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

LARSEN'S "FRESHLIKE" STRAINED APRICOTS

Manufacturer.—The Larsen Company, Green Bay, Wisconsin.

Description.—Canned, sieved apricots.

Manufacture.—Apricots heated, sieved and canned in vacuum. The cans are processed and promptly cooled.

Analysis (submitted by manufacturer).—

	per cent
Moisture	87.6
Total solids	12.4
Ash	0.8
Fat (ether extract)	0.2
Protein (N × 6.25)	0.7
Crude fiber	0.6
Carbohydrates other than crude fiber (by difference)	10.1

Calories.—0.5 per gram; 14 per ounce.

Vitamins.—The method of preparation, sieving and processing are considered efficient for protecting the vitamins.

Claims of Manufacturer.—For all table uses of strained apricots, but especially intended for infants, children and convalescents and for special "smooth" diets. Only warming is required for serving. The natural mineral and vitamin values are retained in high degree.

KING BRAND SYRUP

Manufacturer.—Mangels-Herold Company, Baltimore.

Description.—A table syrup; corn syrup with refiners' syrup and cane sugar.

Manufacture.—The ingredients as purchased from the manufacturers are mixed in formula proportions, heated from thirty to forty minutes at 77 C., strained, and filled into friction top lacquered cans.

Analysis (submitted by manufacturer).—

	per cent
Moisture	19.1
Ash	0.4
Protein (N × 6.25)	0.1
Reducing sugars as dextrose	36.4
Sucrose	11.7
Dextrins (by difference)	32.3
Color	Natural
Specific gravity @ 20 C.	1.397
Specific gravity @ 60 F.	41.2 Beaume

Calories.— 3.2 per gram; 91 per ounce.

Claims of Manufacturer.—A syrup for cooking, baking and table use.

WHITE SWAN PINEAPPLE JUICE

Distributor.—Waples Platter Company, Fort Worth, Texas.

Packer.—Hawaiian Pineapple Company, Ltd., San Francisco.

Description.—Canned Hawaiian Pineapple Juice retaining in high degree the natural vitamin content; the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened), (THE JOURNAL, June 3, 1933, p. 1769).

"WONDER" BRAND EVAPORATED MILK

Manufacturer.—Meyenberg Milk Products Company, Salinas, Calif.

Description.—Unsweetened, sterilized, evaporated milk. The same as Meyenberg All Pure Brand Evaporated Milk (THE JOURNAL, Feb. 22, 1936, p. 617).

ANNUAL MEETING OF THE COMMITTEE ON FOODS

The annual meeting of the Committee on Foods was held in the Palmer House, Chicago, March 12, 1936. There were present:

Dr. E. M. Bailey
Dr. F. C. Bing
Dr. Joseph Brennemann
Dr. Morris Fishbein
Dr. P. C. Jeans
Dr. G. F. Powers
Dr. Lydia J. Roberts
Dr. Mary Swartz Rose
Dr. Russell M. Wilder

Dr. Fishbein was elected Chairman of the Committee and Dr. Jeans Vice Chairman. Among the topics discussed during the meeting, the following may be of interest to physicians and to manufacturers:

The Scope of the Committee.—The Committee discussed at considerable length the question of the scope of its work, the food products to be considered and those which might well be classed as requiring no special consideration by the Committee. It was the consensus of opinion that a number of food products which now stand accepted present no special nutritional problems which necessitate their continued consideration. It was decided that the list of accepted foods be examined to determine which food products should continue to be considered as falling within the purview of the Committee. A statement of the Committee's action will be published shortly.

The Committee also voted that the period of acceptance shall be limited to two years, at the end of which time products shall be considered again.

Fortification of Foods Other than Fortification of Milk with Vitamin D.—Fortified foods have not previously been defined by the Committee. While no definition is attempted at the present, it is understood that in general a fortified food is one in which the percentage of mineral elements or the unitage of vitamins has been made significantly beyond that of the same food as it exists in nature. This enhancement of the vitamin (or inorganic salt) content is brought about by the addition of a concentrate or rich source of the material or the actual salts or vitamins themselves.

The Committee discussed at considerable length the problems involved in the addition of vitamin preparations to foods. While the Committee has shown by its actions that it is not opposed to the addition of vitamin concentrates to foods under all circumstances, yet it desires that such fortification shall not be made unless (*a*) it has been demonstrated that there is a need for such fortification and (*b*) unless suitable experimental evidence shows that the fortified food suitably serves the purpose desired. It was voted that the policy of the Committee in general shall be as follows:

> "If in exceptional cases a general need for vitamin (or inorganic salt) intake above that afforded by the usual mixed diet of common foods is indicated, the Committee shall require (*a*) acceptable and convincing evidence that there is a need for enhanced amounts of vitamins (or inorganic salts) in the general food supply; and (*b*) that the food vehicles proposed for the distribution of such vitamins (or inorganic salts) are suitable and appropriate."

In line with the foregoing policy it was voted that manufacturers of accepted vitamin D fortified products including breads and cereals be requested to produce evidence meeting points *a* and *b* above before a date to be specified; if satisfactory evidence is not forthcoming, the Committee will be obliged to rescind acceptance of such products.

Significance of Terms Excellent, Good and Fair to Denote the Relative Value of Food as Sources of Vitamins.—The Committee discussed the possibility of preparing suitable tables to give the value of foods as sources of the vitamins. The majority of tables available at the present time contain the well known plus and minus marks, which are hardly suitable for refined dietary calculations.

Vitamin E.—The Committee again considered the claims for vitamin E and concluded that no adequate scientific data are available which establish the rôle of vitamin E in human dietetics. It is a ruling of the Committee that neither claims for vitamin E nor mention of the vitamin shall appear on food labels or in advertising for accepted foods addressed to the public. It was the consensus of opinion of the Committee that mention of vitamin E in advertising addressed to the profession of accepted food products shall not be permitted if inferentially such advertising recommends the use of the preparation because of its vitamin E content.

Special Purpose Foods.—The class of foods called "Special Purpose Foods" was defined by the Committee three years ago. In this group are included a number of products specially intended for carbohydrate restricted diets. The referee reported on the question of the labeling of such products. At the present time the importance of carbohydrate restricted diets for diabetic patients is probably secondary to the usefulness of ketogenic diets in the treatment of pyelitis and cystitis and other infections of the urinary tract. The value of water packed foods is limited to a large extent to people who need to know the amount or composition of what they eat more accurately than most people. It is therefore important that the composition shall be stated on the label and expressed in percentages. The referee suggested that the language of the ruling be changed to have the mineral content and also the vitamin unitage recorded in units per hundred grams. It was pointed out that carbohydrate should preferably be expressed in terms of available carbohydrate, although the difficulties of chemically defining available carbohydrate are realized.

The following addendum to the decision of the Committee regarding the labeling of special purpose foods was presented by the referee and adopted by the Committee:

> "In the case of water packed fruits and vegetables the designation 'Special Purpose Food' will not be required provided it is replaced by a statement to the effect that this food or these foods are prepared with special reference to the needs of invalids and have no added salt or sugar. The vitamin and mineral content should be stated on the label as well as the calories per gram or ounce and the grams each of total carbohydrate, protein, and fat per hundred gram weight of fruit or vegetable and liquid."

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SATURDAY, JULY 4, 1936

HORNER'S SYNDROME

A distinguished Swiss ophthalmologist, Johann Friedrich Horner, described in 1869 a symptom complex generally known by his name. The syndrome is characterized by sinking in of the eyeball, drooping of the upper lid, slight elevation of the lower lid, constriction of the pupil, narrowing of the palpebral fissure, and certain changes in the vasomotor and sudorific activity of the skin of the face. With the developments in neurosurgery and the ever increasing number of industrial and motor accidents, this syndrome is now more frequently observed than formerly. Previous to Horner's clinical observations, experimental work on laboratory animals that would in part explain the syndrome had been accomplished by several workers. Claude Bernard, who in 1852 sectioned the cervical portion of the sympathetic trunk, had observed retraction of the eyeball and narrowing of the palpebral fissure. Budge had found that the sympathetic nerves to the head arise in the first and second dorsal segments of the spinal cord. Langley had identified the levels in the cord at which the various types of sympathetic fibers arise. He had found that vasomotor control to the conjunctiva and to the external ear comes from the third and fourth dorsal segments, and the pilomotor fibers to the face from the fifth and sixth dorsal segments. Langley also discovered that the preganglionic fibers to the dilator pupillae muscle end in the superior cervical ganglion and establish synaptic relations there with the postganglion fibers that go direct to the pupillary muscles. Although Horner in his original paper, as translated by Fulton,[1] did not refer to this experimental work, his clinical observations were in correlation with the physiologic data. Horner's priority to the discovery seems unquestioned today; in 1838, however, Hare, a house surgeon at the Stafford County General Infirmary, had described the clinical syndrome and the pathologic changes found post mortem in a case of carcinoma that involved the nerves and blood vessels on the left side of the neck and the phrenic and lower cervical ganglions of the sympathetic. Hare understood the connection of the tumor with the paralysis of the arm in his case but apparently did not understand the relation of the drooping eyelid to the sympathetic nervous system. Had Hare been familiar with the experimental work of Claude Bernard, Cruikshank, Petit and others, he might have made the discovery which later was made by Horner.

Horner's syndrome may follow disease or injury to the brain stem, to the lower part of the cervical portion of the spinal cord or the upper part of the dorsal portion, or to the superior cervical sympathetic ganglion or the postganglionic nerves, as well as to some of the nerve roots. There is some difference of opinion about the exact etiology of each of the elements of the symptom complex. Certain constituents of the typical syndrome are not present in all cases. This may be due to the destruction of certain nerve fibers in some cases while in other cases these fibers escape. Cobb and Scarlett [2] have found that the most severe oculopupillary syndromes are those due to injuries of the seventh and eighth cervical and first dorsal nerve roots, less severe symptoms are produced by injuries to the cervical portion of the sympathetic trunk, and the least pronounced symptoms follow definite injuries to the spinal cord.

According to DeJong,[3] the most frequently mentioned causes of Horner's syndrome are tumor of the spinal cord, or syringomyelia at the level of the seventh or eighth cervical or first thoracic segment of the spinal cord. Other causes may be cervical tumor or enlarged lymph nodes, cervical rib, cervical pachymeningitis, aortic aneurysm, mediastinal tumor, disease of the pulmonary apexes, radiculitis, disease of the esophagus, and adenoma of the thyroid gland. The symptom complex may follow trauma, especially bullet or stab wounds, or surgical operations on the cervical portion of the sympathetic chain and occasionally on the thyroid or the phrenic nerve. Horner's syndrome may develop in conjunction with lesions in the brain stem or in the midbrain or cortex; it has been reported as occurring in epidemic meningitis, epidemic encephalitis, anterior polyneuritis and mitral stenosis. Jacox [4] reported that cases of tumor of the upper portion of the pulmonary sulcus are characterized by Horner's syndrome. In his recent paper, De Jong reports ten cases illustrating different causative factors of the syndrome observed in one year at the University Hospital in Ann Arbor. Paralysis of the cervical portion of the sympathetic nervous system is probably more frequent than reports in medical literature indicate.

1. Fulton, J. F.: Horner and the Syndrome of Paralysis of the Cervical Sympathetic, Arch. Surg. **18**: 2025 (April) 1929.

2. Cobb, Stanley, and Scarlett, H. W.: A Report of Eleven Cases of Cervical Sympathetic Nerve Injury, Causing the Oculopupillary Syndrome, Arch. Neurol. & Psychiat. **3**: 636 (June) 1920.

3. DeJong, R. N.: Horner's Syndrome, Arch. Neurol. & Psychiat. **34**: 734 (Oct.) 1935.

4. Jacox, H. W.: Superior Pulmonary Sulcus Tumor, J A. M. A. **103**: 84 (July 14) 1934.

MESENTERIC LYMPHADENITIS

Acute mesenteric nontuberculous lymphadenitis as a clinical entity is a comparatively recent concept. The lymph nodes of the mesentery received but scant attention from the surgeon, probably because they are neither palpable nor visible except in the presence of lymphangitis or regional involvement secondary to inflammation, malignant tumor or tuberculosis of the bowel. The mesenteric lymph nodes may show but little enlargement with severe inflammation of the appendix or the gallbladder. Enlarged mesenteric lymph nodes in the young were formerly considered invariably tuberculous. Wilensky [1] in 1920 and Heusser [2] in 1923 described cases in which the enlarged lymph nodes were definitely involved by simple nontuberculous inflammation. The later reports of Wilensky and Hahn [3] in this country and of Pribram [4] in Germany established the existence of acute mesenteric lymphadenitis as an independent clinical entity. The condition is seen preponderantly in children but also in young adults. Following an acute infection, most frequently tonsillitis, a lymphangitis develops within the peritoneal cavity which leads to enlargement of the mesenteric lymph nodes, injection of the leaves of the mesentery, and a hyperemia of the intestinal serosa. The ileocecal segment appears to be the seat of predilection. The clinical symptoms resemble closely those of acute appendicitis. At operation a small amount of serous or turbid fluid, a normal appendix and swollen lymph nodes running up to the root of the mesentery are found. The nodes vary in size and may attain that of a bean. Following the appendectomy, the clinical signs subside in the course of a few days.

In a recent analysis of cases observed in Pribram's clinic during the last ten years, Kleiber [5] points out that after an appendectomy cases of mesenteric lymphadenitis, unlike those of acute appendicitis, show a tendency to recurrence of attacks of abdominal pain. Particularly characteristic is the coincidence of these attacks with repeated attacks of sore throat. The inflammation subsides in the course of a few days. Occasionally there remains a tenderness in the ileocecal region leading to an erroneous diagnosis of postoperative adhesions. The course of the disease is mild. A few cases have been observed, however, with a stormy onset and symptoms of acute peritonitis, such as high fever, prostration, abdominal distention, vomiting, constipation and a pronounced leukocytosis. At operation, diffuse redness of the distended intestinal loops, a turbid exudate, fibrinous deposits and gluing together of the intestinal loops were found. The appendix was unaltered or only slightly involved. The lymph nodes were swollen and the leaves of the mesentery hyperemic. The prognosis in these cases is grave, the patient dying of peritonitis in the course of a few days regardless of whether or not an operation is performed. In a few of the cases streptococci were isolated from the lymph nodes. Kleiber stresses that a careful history almost never fails to bring out the existence of pathologic tonsils. The tonsillar infection is considered the primary focus from which streptococci reach the mesenteric lymph nodes by either the hematogenous or the enteric route (organisms swallowed with saliva). In his report on eighty-six cases of mesenteric lymphadenitis personally observed, in seventy-eight of which operation was performed, Coleman [6] stresses the association of this condition with acute respiratory infections in the winter months and with intestinal infection in the summer. He likewise found the tonsils "usually infected and enlarged." Goldberg and Nathanson [7] isolated hemolytic streptococci from every one of the throats of patients when cultures were made. They have isolated the same organism from a small percentage of nodes removed.

The treatment of the condition is surgical intervention. Accurate preoperative differentiation of mesenteric lymphadenitis and acute appendicitis is not possible. Tonsillectomy is definitely indicated in cases in which postoperative attacks of abdominal pain recur.

1. Wilensky, A. O.: Mesenteric Lymphadenitis, M. Rec. **98**: 770 (Nov. 6) 1920.
2. Heusser, H.: Beitr. z. klin. Chir. **130**: 35, 1923.
3. Wilensky, A. O., and Hahn, L. J.: Mesenteric Lymphadenitis, Ann. Surg. **83**: 812 (June) 1926.
4. Pribram, B. O.: Lymphangitis Mesenterialis, Arch. f. klin. Chir. **140**: 589, 1926.
5. Kleiber, N.: Erfahrungen ueber die Lymphangitis mesenterialis, Deutsche Ztschr. f. Chir. **246**: 393 (Nos. 7-8) 1936.

RECOGNITION OF CONGENITAL HEART DISEASE

Recently McGinn and White [1] have reviewed the records of 7,500 necropsies at the Massachusetts General Hospital to determine the frequency with which congenital heart disease has been seen there since 1895. Congenital heart disease was found sixty-seven times, representing an incidence of 0.9 per cent. About one third of the patients, or twenty-one, were infants under 1 year of age; 3,400 of the necropsies were performed in the last fifteen years. The clinical records of the forty-one cases in which there were congenital lesions were studied in detail. The incidence of congenital heart disease in this group was 1.2 per cent. It is therefore suggested that more congenital defects are recognized when the hearts are examined with such lesions especially in mind. The clinical records showed that a correct diagnosis of this lesion had been made seven times, four in adults and three in infants under 1 year of age. The cases consisted of three with

6. Coleman, E. P.: The Diagnosis of Mesenteric Lymphadenitis, Illinois M. J. **68**: 408 (Nov.) 1935.
7. Goldberg, S. L., and Nathanson, I. T.: Acute Mesenteric Lymphadenitis, Am. J. Surg. **25**: 35 (July) 1934.
1. McGinn, Sylvester, and White, P. D.: Progress in the Recognition of Congenital Heart Disease, New England J. Med. **214**: 763 (April 16) 1936.

idiopathic congenital hypertrophy, two with interventricular septal defect, one with the tetralogy of Fallot, and one with pulmonary stenosis. In five other patients, including one infant, the correct diagnosis had been suspected during life. These twelve cases therefore represent the correct or suspected diagnosis in 29 per cent of the congenital lesions coming to necropsy in the last fifteen years.

In reviewing these cases with the aim of improving the percentage of correct diagnoses, a large group of lesions were encountered; namely, those of defective valve structure and abnormal coronary vessels, which at the present time provide no adequate evidence to suggest their presence. Certain clinical clues, however, can be recognized, according to the authors, as affording suggestive evidence for the recognition of some of the congenital lesions. The most characteristic clinical sign of patent ductus arteriosus is a typical murmur. It is generally heard best in the second left interspace and is a harsh, humming murmur with a sound similar to a mill wheel or the machine-like purr of a large motor. It is continuous with accentuation during systole and may be accompanied by a thrill. X-ray examination is generally characteristic. The most important evidence of interventricular septal defects is the presence of a harsh systolic murmur heard best at the third interspace and more or less confined to that immediate area but frequently heard in the back between the scapulae. There is usually a thrill accompanying the murmur. X-ray examination fails to show gross enlargement in spite of the loud murmur. Blunting of the apex is sometimes present. Idiopathic congenital hypertrophy of the heart refers to enlarged and dilated hearts observed at birth or early infancy and for which no cause can be discovered. There are five signs which, when they occur in association, permit the diagnosis of the tetralogy of Fallot with a high degree of certainty: cyanosis of the lips, cheeks, ears, fingers and toes; clubbing of the fingers and toes; a loud systolic murmur heard best in the pulmonary valve area and in the third left interspace; extreme right axis deviation seen in the electrocardiogram, and, finally, disclosure on x-ray examination that the heart is boot shaped, owing to enlargement of the right ventricle without enlargement of the pulmonary artery. Coarctation of the aorta can often be recognized by five diagnostic criteria. These are hypertension occurring in children and young adults; a blood pressure higher in the arms than in the lower extremities; conspicuous blood vessels of the trunk, especially of the intercostal and mammary arteries; a harsh systolic murmur at the base of the heart and in the back, and evidence of left ventricular hypertrophy on x-ray examination. The presence of symptoms of persistence of a right aortic arch is dependent on the degree of constriction that might be caused. A heart with a "water bottle" shape should be sufficient to suggest a cor biatriatum triloculare. Interauricular septal defects are common at necropsy. Four observations suggest this anomaly: late cyanosis; a large pulmonary artery, enlarged lung hilus shadows and an enlarged right ventricle seen radiographically; right axis deviation in the electrocardiogram, and paradoxical embolism.

While admittedly the correct clinical diagnosis of congenital anomalies of the heart is difficult, an awareness of their possibility and the knowledge leading to a correct diagnosis should increase the frequency of diagnosis previous to necropsy.

Current Comment

DOCTORS AND DIAPLEX

In a recent trial the federal government was defeated in its attempt to prove one Horace Wayne Pierce, manufacturer and shipper of a herb tea called "Diaplex," guilty of fraud under the criminal clause of the Food and Drugs Act. Diaplex, the dried leaves and stems of Atriplex canascens (salt bush), is offered as a specific for diabetes. The advertising exaggerates the dangers of insulin and dwells on the simplicity of taking Diaplex. The government lost its case principally because of the premature enthusiasm of a physician for the nostrum. As told in a brief summary of the case issued by the United States Department of Agriculture, the government contended that the falsity of the claims made for Diaplex as a remedy for treating diabetes was fully proved. The breakdown in the government testimony came when two witnesses—one a doctor and the other a layman—admitted the writing of complimentary and optimistic letters to the manufacturer. Both these witnesses testified nevertheless that they had been misled, as the herb tea turned out to be worthless in their later experience. At the trial Pierce claimed that he depended on these letters as expressions of opinion from persons competent to judge the effects of his treatment. In the face of this testimony, the jury was not convinced of the fraudulent intent, which, under the law, must be shown in all criminal cases involving curative claims for medicines. The testimony of physicians called by the government that Diaplex could not affect the course of diabetes was entirely nullified by the careless endorsement of one physician. Endorsements given by physicians to "patent medicine" venders, either carelessly or wilfully, are invariably distorted into bait for the uncritical patient as a means of luring him away from proved methods of treatment. The case of Diaplex should serve as a warning to the physician against haste in judgment of therapeutic results. The difficulty of evaluating remedies for arthritis, diabetes, nephritis, hypertension and similar chronic conditions should be realized. The lack of suitable controls is apparent in all these hasty enthusiasms which lead doctors into writing or voicing commendation before time has truly tested the results. Then, like the ghost in Hamlet, their testimonials come back in after years to haunt them.

Association News

THE ATLANTIC CITY SESSION

Eighty-Eighth Annual Session to Be Held in June

The American Medical Association will hold its Eighty-Eighth Annual Session in Atlantic City, N. J., June 7 to 11, 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

District Meetings.—The Ninth Councilor District Medical Society was addressed in Eureka Springs, June 2, by Drs. Charles T. Chamberlain, Fort Smith, on "Mechanism of Heart Beat and Electrocardiography"; Francis T. H'Doubler, Springfield, Mo., "Minutiae of Thyroid Signs and Symptoms"; George B. Fletcher, Hot Springs, "Medicine Forty Years Ago and Now"; Guy D. Callaway, Springfield, "Cardiac and Renal Complications of Pregnancy"; Fred R. Farthing, Springfield, "Treatment of Certain Complications of Pregnancy," and William R. Brooksher, Fort Smith, "The Future of Medicine." Dr. Brooksher also addressed the Eighth Councilor District Medical Society, May 28. Other speakers were Drs. Robert Caldwell, "Sinusitis in Children"; Allie C. Kolb, "Problem of Caring for the Mentally Abnormal," and Augustus C. Shipp, "Surgical Treatment of Tuberculosis." All are of Little Rock.

CALIFORNIA

Hospital News.—A symposium on the use of analgesics, hypnotics and sedatives was presented at the meeting of the staff of the Peralta Hospital, Oakland, June 25. Speakers included Drs. Olin H. Garrison, Frank H. Bowles, Charles C. Hall, Leonard B. Barnard, Thomas I. Buckley, Lester B. Lawrence and Burton W. Adams.—The staff of Mary's Help Hospital, San Francisco, gave a banquet, June 27, in honor of five members of the house staff who are leaving. The guests of honor were Drs. Charles A. Rethers, Dwight A. Mater, John J. McDevitt, Alexander Rogozen and John B. Thielen.

COLORADO

Society News.—Dr. Harold L. Hickey was chosen president of the Colorado Otolaryngological Society at its annual meeting in Denver, May 2; Dr. Herman I. Laff, secretary, and Dr. Harry L. Whitaker, treasurer, all of Denver.——At a meeting of the Medical Society of the City and County of Denver, May 16, Dr. William J. Kerr, San Francisco, discussed "The Anxiety State in Practice," and Dr. William F. Rienhoff Jr., Baltimore, "Diagnosis and Treatment of Carcinoma of the Lung."

Fellowships in Psychiatry.—The Commonwealth Fund has renewed its appropriation to provide fellowships for graduate training in psychiatry at the University of Colorado Psychopathic Hospital, Denver. Four fellowships of three years' duration have been made available, two beginning in the fall of 1936 and two in 1937. Dr. Marion B. Durfee, who graduated from the University of Colorado School of Medicine, Denver, in 1934 and completed an internship at Ancker Hospital, St. Paul, and Dr. Julius M. Wallner, who graduated from the University of Pennsylvania in 1935 and who has completed an internship at the Colorado General Hospital, Denver, have been appointed to begin their fellowships in September.

CONNECTICUT

Cancer Survey Under Way.—To assist in a state survey of cancer prevention, Dr. Matthew H. Griswold, Kensington, health officer of the town of Berlin, has been appointed public health physician in the state department of health to specialize in cancer work, a newly created position. The state survey was made possible with funds granted to the state health department by the 1935 legislature under a bill sponsored by the Connecticut State Medical Society. A statistical study of cancer cases now under way by Mr. Herbert F. Hirsche was the first step in the survey. Dr. Griswold, who is resigning as health officer and relinquishing his private practice, will cooperate with the tumor committee of the state medical society in its cancer program. About sixteen clinics are now operating at general hospitals in the state as a result of the society's program, and others are planned.

GEORGIA

Society News.—Dr. Gerry R. Holden, Jacksonville, Fla., discussed "Treatment of Uterine Hemorrhage" before the Fulton County Medical Society in Atlanta, June 18.——At a meeting of the Atlanta Clinical Society, May 27, Drs. James N. Brawner Jr. read a paper on "Clinical Aspects of Certain Ovarian Tumors"; James Mason Baird, "Ophthalmologic Findings in Common Medical Conditions," and John D. Martin Jr. presented a case report on "Congenital Absence of Dorsal Fixation of the Mesentery of the Small Intestine."

ILLINOIS

Two Cases of Rocky Mountain Spotted Fever.—The state health department reported that two cases of Rocky Mountain spotted fever had recently been recognized in Illinois. One of the patients, a cattle raiser's wife, living on a farm near Canton, told of finding a tick on her head nine days prior to the onset of her illness. Shortly before she had been working with sick steers recently purchased through the Peoria stockyards, where they had been shipped from the West. Apparently the tick had transmitted the disease to this patient, it was said. The other patient, a filling station attendant at Clinton, had no recollection of a tick or other insect bite; presumably an infected insect had been brought along by an automobile party, the department reported.

Chicago

Society News.—Dr. Richard M. Davison was chosen president of the Chicago Tuberculosis Society at its annual meeting recently.——Dr. George de Tarnowsky was chosen president-elect of the Chicago Gynecological Society at its annual meeting, June 12, and Dr. Harold O. Jones was installed as president.

University News.—The cornerstone of a new medical and dental laboratory building of the University of Illinois College of Medicine was laid June 4.——Wilbur R. Tweedy, Ph.D., has been appointed professor and head of the department of physiologic chemistry at Loyola University School of Medicine, succeeding the late William C. Austin, Ph.D. He has been associated with the medical school since 1925.

Five "Voice of Safety" Cars.—The police bureau of accident prevention has equipped five automobiles with loud speakers to spread a message of traffic safety, according to the Chicago *Tribune*. Each car, manned by two specially trained policemen, will tour the city, particularly in the vicinity of schools, announcing the "do's" and "don'ts" of safe driving and safe walking. Motorists and pedestrians committing minor infractions will be warned politely through the loud speakers.

INDIANA

Personal.—Dr. Argal E. Hubbard, formerly superintendent of the Peoria Municipal Tuberculosis Sanitarium, Peoria, Ill., has been named to a similar position at the Marion County Tuberculosis Hospital, Indianapolis, to succeed Dr. William McQueen, who resigned June 1 on account of ill health.——Dr. Orlando W. Brownback, Pendleton, recently observed his ninetieth birthday.

Society News.—Dr. Paul D. Crimm, Evansville, addressed the Gibson County Medical Society at Princeton, June 8, on "Surgical Treatment of Pulmonary Tuberculosis."——At a meeting of the Dearborn-Ohio County Medical Society in Lawrenceburg, May 28, Dr. William M. Doughty, Cincinnati, discussed "X-Rays and the General Practitioner."——The Marshall County Medical Society was addressed in Plymouth, June 10, by Dr. George S. Bond on "Heart Sounds with Their Interpretation."——At a meeting of the Indiana State Pediatric Society, June 8, Dr. Philip C. Jeans, Iowa City, discussed nutrition, and Dr. Irvine McQuarrie, Minneapolis, edema.

IOWA

Personal.—Dr. James F. Edwards has retired as head of student health service and the department of hygiene, Iowa State College, Ames, on account of age, and has been succeeded by Dr. John G. Grant, his assistant for several years.——Dr. John M. Hayek, Cedar Rapids, has been named pediatrician for the division of child health and health education for the state department of health; this is a newly created position

financed with funds appropriated under the Social Security Act. ——Dr. Louis J. Leech, West Branch, has been made an honorary life member of the Iowa State Medical Society.

County Society Exhibit at Centennial.—A medical and historical exhibit was opened to the public, June 26, by the Scott County Medical Society as a part of the centennial of the incorporation of Davenport as a town. The exhibit, which takes up the lobby and mezzanine floors of the Union Bank Building, will run three weeks, although the centennial celebration of the community is expected to continue into January, it is reported. At the opening, Dr. William W. Bauer, director, Bureau of Health and Public Instruction, American Medical Association, Chicago, gave an address entitled "Popular Beliefs That Are Not So," and a sound motion picture, showing animal experimentation in the conquest of disease, was displayed. During the run of the exhibit a member of the Scott County Medical Society is to give a public address each evening. The display depicts the growth of the county medical society since its founding in 1856 and shows contrasting photographs of the hospitals of Davenport when they were first established and as they are today, including all historical data on their growth. Famous figures of medical history, such as Pasteur, Ehrlich and Lister, are represented in historical material and photographs. Another interesting feature is a reproduction of the operating room of a modern hospital with life-sized artificial models performing the duties of hospital personnel.

LOUISIANA

Society News.—The Ouachita Parish Medical Society was host to the Rapides Parish Medical Society at a banquet, May 7. Speakers were Drs. Albert L. Culpepper on "Treatment of Acute Empyema"; Ford A. Thomas, "Treatment of Lobar Pneumonia with Specific Serum," and Ralph Lambert, all from Alexandria, "Treatment of Varicose Veins."——The Orleans Parish Medical Society held a meeting at the U. S. Marine Hospital, June 22; speakers were Drs. William L. Smith on "Helium and Oxygen Therapy"; Richey L. Waugh, "Fractures of Long Bones and Methods of Treatment"; Antonio Mayoral, "The Shrunken Lung"; John A. Trautman, "Wilm's Tumor, with Report of Two Cases," and Waldemar R. Metz, "Elephantiasis of Scrotum Following Bilateral Inguinal Glandular Tuberculosis." Dr. Edward H. Rynearson, Rochester, Minn., addressed the society, June 8, on "Clinical Syndromes Resulting from Dysfunction of the Endocrine Glands."——Dr. Philips J. Carter was elected president of the New Orleans Gynecological and Obstetrical Society, May 21.

MAINE

Society News.—At a meeting of the Kennebec County Medical Association in Gardiner, May 22, speakers included Elmer W. Campbell, Augusta, who discussed "The New Cosmetic Law"; Dr. Herbert R. Kobes, Augusta, "Social Security Act," and Dr. Shields Warren, Boston, "The Pathology of Malignant Disease with Relation to Treatment."——Dr. Stanwood E. Fisher addressed the Portland Medical Club recently on "Inflammation of the Nasal Sinuses." Dr. DeForest Weeks also addressed a recent meeting of the club on chronic arthritis and sciatica.——The York County Medical Society was recently addressed in York by Dr. Allan L. Davis, Boston, among others, on fractures.

MARYLAND

Dr. Uhlenhuth Awarded Van Meter Prize.—Eduard Uhlenhuth, Ph.D., professor of anatomy, University of Maryland School of Medicine, Baltimore, was awarded the Van Meter Prize of the American Association for the Study of Goiter at its annual session, June 9, for his thesis on "Isolation of the Thyreo-Activator Hormone from the Anterior Lobe of the Bovine Pituitary Gland." Dr. Uhlenhuth received his degree of doctor of philosophy at the University of Vienna in 1909. He became associated with the University of Maryland in 1925.

MASSACHUSETTS

Portrait of Dr. Leary.—The class of 1906 at Tufts College Medical School recently presented to the school a portrait of Dr. Timothy Leary, medical examiner for the southern district of Boston. Dr. George S. Foster, Manchester, N. H., president of the class, made the presentation. John A. Cousens, LL.D., president, accepted it on behalf of the college and turned it over to Dr. Albert Warren Stearns, dean of the medical school. Speakers included Drs. Louis E. Phaneuf, Frank H. Dunbar and Francis P. McCarthy, all of Boston. Dr. Leary was assistant professor of pathology and bacteriology at Tufts from 1897 to 1900 and professor from 1900 to 1929, when he became emeritus professor.

Personal.—Dr. Benjamin Sachs, assistant professor of ophthalmology, has been appointed professor of ophthalmology at Tufts College Medical School, Boston.——Dr. William O. Faxon, Stoughton, was guest of honor at a dinner, May 1, in celebration of his completion of sixty years in the practice of medicine; he has been medical examiner of Norfolk County for forty-two years. A silver platter, bearing the engraved names of those who participated in the celebration, was presented to Dr. Faxon.——Philip Drinker, Ch.E., has been promoted from associate professor to professor of industrial hygiene at Harvard University School of Public Health, Boston.——Dr. John H. Waite, clinical professor of ophthalmology, Harvard University Medical School, Boston, was awarded the honorary degree of doctor of science by Bucknell College at its eighty-sixth commencement at Lewisburg, Pa., recently.

MICHIGAN

Rabies.—The Detroit Department of Health has requested the police to enforce the ordinance requiring that all dogs be kept on a suitable leash, in an effort to prevent the spread of rabies in the city. The department urges the vaccination of all dogs in the area bounded on the north by Eight Mile Road, on the east by Dexter Boulevard, on the south by Fenkell Avenue and on the west by Wyoming Avenue. Two rabid dogs were reported during April, six during May and three up to June 13.

Portrait of Dr. LeFevre.—A life-sized oil portrait of Dr. George L. LeFevre was one of three unveiled at a ceremony in Mercy Hospital, Muskegon, June 1, in appreciation of his many years' interest in the development of the institution. Dr. LeFevre has been identified with Mercy Hospital since its founding in 1903, serving as its president, chief of staff and chairman of the advisory committee. He has been president of the Muskegon County Medical Society and for several years was councilor of the eleventh district. For many years a member of the Michigan State Board of Registration in Medicine, he served as chairman for sixteen consecutive years. He was president of the Michigan State Medical Society in 1933.

MINNESOTA

State Medical Election.—Dr. Alfred W. Adson, Rochester, was elected president of the Minnesota State Medical Association at its annual meeting in May. Other officers include Drs. Henry W. Goehrs, St. Cloud, and Douglas P. Head, Minneapolis, vice presidents; Edward A. Meyerding, St. Paul, secretary, and William H. Condit, Minneapolis, treasurer. The next annual session will be held in St. Paul. A revised constitution was provisionally adopted. One of the major changes proposed in the new constitution is the election of a speaker for the house of delegates. In anticipation of the permanent establishment of this office, Dr. Oscar E. Locken, Crookston, was elected temporary speaker. Dr. Robert G. Green, professor of bacteriology and immunology, University of Minnesota School of Medicine, Minneapolis, received the medal presented annually by the Southern Minnesota Medical Association for the best scientific exhibit. His subject was tularemia and certain filtrable viruses. Sir Henry Wellcome, who founded the Wellcome Research Institution, London, was present at the meeting.

Retiring Faculty Members Honored.—A testimonial dinner was held, June 10, in honor of the following members of the faculty of the University of Minnesota School of Medicine, who are retiring on account of age:

Dr. James T. Christison, associate professor of pediatrics.
Dr. Charles H. Mayo, professor of surgery.
Dr. Charles A. Erdmann, associate professor of anatomy.
Dr. James S. Gilfillan, associate professor of medicine.
Dr. Thomas B. Hartzell, lecturer in medicine.
Dr. John T. Rogers, associate professor of surgery.
Dr. John L. Rothrock, professor of obstetrics and gynecology.
Dr. Franklin R. Wright, associate professor of urology.

The retirement of Dr. Elias P. Lyon as dean of the medical school was announced some time ago. At the dinner, a portrait of Dr. Lyon, the gift of heads of the department and divisions of the medical school, was presented to the medical school by Dr. Harold S. Diehl, his successor as dean. Dr. William J. Mayo accepted it on behalf of the board of regents. The establishment of the Elias Potter Lyon Lectureship was announced on this occasion, Dr. Adam M. Smith making the announcement for the Medical Alumni Association. President Lotus D. Coffman presided and Dr. Jennings C. Litzenberg was toastmaster.

MISSOURI

Dr. Marriott to Be Dean at California.—Dr. Williams McKim Marriott, since 1923 dean of Washington University School of Medicine, St. Louis, has resigned to become dean and professor of research medicine at the University of California Medical School, San Francisco. Until a new dean has been appointed at Washington, the affairs of the medical school will be administered by a committee of three faculty members: Dr. David P. Barr, head of the department of internal medicine; Philip A. Shaffer, Ph.D., head of the department of biologic chemistry, and Dr. Evarts A. Graham, head of the department of surgery. Dr. Marriott will be succeeded as professor of pediatrics and physician-in-chief of the St. Louis Children's Hospital by Dr. Alexis F. Hartmann, associate professor of pediatrics at Washington. Dr. Marriott, who is 51 years of age, graduated from Cornell University Medical School in 1910. He began his teaching career as assistant in chemistry at the University of North Carolina. Subsequently, until he became professor of pediatrics at Washington University School of Medicine, he taught at Cornell, Washington University and Johns Hopkins. He served on the Council on Pharmacy and Chemistry of the American Medical Association from 1926 to 1930. He is the author of "Recent Advances in Chemistry in Relation to Medical Practice" and "Infant Nutrition." Dr. Langley Porter, who has been dean of the University of California Medical School since 1927, reached the retirement age in 1935, but the board of regents extended his term for one year.

NEW JERSEY

Society News.—Drs. Milton Helpern and Clay Ray Murray, New York, addressed the Bergen County Medical Society, Hackensack, June 9, on "Sudden Death" and "Low Back Pains" respectively.——The newly organized New Jersey chapter of the Association of Military Surgeons of the United States held its first formal meeting at Atlantic City, June 2, during the meeting of the Medical Society of New Jersey. Speakers included Gen. Harry L. Gilchrist, who discussed medical problems of gas warfare; Dr. William Seaman Bainbridge, New York, progress in military medicine and surgery, and Col. Jay W. Grissinger, U. S. Army, war-time medical experiences and improvements evolved from them.——A symposium on ophthalmologic subjects was presented at a meeting of the Passaic County Medical Society, Paterson, May 14, by Drs. Earle C. Reynolds and Thomas M. Glasgow, Passaic, and Thomas A. Sanfacon and Manasseh Benjamin Park, Paterson.

NEW MEXICO

State Medical Election.—Dr. George W. Jones, Clovis, was chosen president-elect of the New Mexico Medical Society at the annual session, May 7, in Carlsbad. Dr. Mallory B. Culpepper, Carlsbad, was installed as president and Dr. Leo B. Cohenour, Albuquerque, reelected secretary. The 1937 meeting will be in Clovis.

NEW YORK

State Society Prize Awards.—At the annual session of the Medical Society of the State of New York in New York in April, Dr. Karl Fischel, Saranac Lake, received the Merrit H. Cash Prize awarded by the society for an essay on "The Problem of Tuberculosis." Dr. Arthur J. Bedell, Albany, received the Lucien Howe Prize for an essay on "Choroideremia."

Society News.—The Dutchess County Medical Society held its May meeting at the Veterans' Administration Facility, Castle Point, with the following speakers: Drs. Joseph F. Wallace, on "Hospitalization in Veterans' Administration Facilities"; Hubert Ivey, "Collapse Therapy in Pulmonary Tuberculosis"; Guy P. Asper, "Treatment of Complications in Tuberculosis," and Samuel A. Beddall, "Pneumoconiosis from an X-Ray Standpoint."——Dr. Philip L. Forster, Albany, addressed the Medical Society of the County of Albany, June 24, on "The General Practitioner and His Orthopedic Problems."

Instruction in Care of Crippled Children.—The New York State Department of Health is cooperating with New York University in offering two courses to prepare persons for work with the physically handicapped. The courses are intended for public health nurses and others selected by state authorities to carry out the program of the Social Security Act as it relates to crippled children. They are to be given at the New York State Reconstruction Home at West Haverstraw, the first session from July 6 to August 14, the second from August 17 to October 17. Information concerning appointments may be obtained from the agency in charge of administration of the Social Security Act in each state; information about the courses from Dr. George G. Deaver, New York University, Washington Square, New York, N. Y.

New York City

Personal.—Dr. Simon Flexner, member emeritus of the Rockefeller Institute for Medical Research, was elected an honorary fellow of the Royal Society of Medicine in London, May 19.—— Dr. John N. Evans has succeeded Dr. Henry Mitchell Smith as head of the department of ophthalmology at Long Island College of Medicine. Dr. Smith is professor emeritus.

Three New Health Centers.—Cornerstones have been laid recently for three new health center buildings as part of a program that will eventually include thirty district centers. WPA grants and loans amounting to $1,900,963 have made possible the construction of eight buildings immediately. Those for which cornerstones have been placed recently are in East Harlem, Chelsea Park and the Williamsburgh-Greenpoint district of Brooklyn. Construction has been begun on others in Central Harlem and the Red Hook-Gowanus section of Brooklyn, it is reported.

Eight Hour Day for City Hospital Employees.—The board of aldermen voted June 17 to grant the eight hour day to employees in city hospitals. The change will add about $1,000,000 annually to the budget of the department, it was said, but in the opinion of those supporting the bill the expense is justified because of better service to patients and reduced turnover in the hospitals. The bill's provisions may be suspended in times of emergency, it is provided. It does not affect administrative officials, medical and lay superintendents, physicians, interns, pathologists, roentgenologists, superintendents of nurses and ambulance drivers. Alderman James A. Burke, who sponsored the city law, introduced into the legislature last year a similar law affecting state hospitals, which went into effect July 1.

Dr. Ewing Awarded Medal.—The Philadelphia Board of City Trusts recently bestowed the John Scott Award on Dr. James Ewing, professor of oncology, Cornell University Medical School, for his research in classifying tumors. The Scott award, consisting of a bronze medal and $1,000, was given to the city of Philadelphia under the will of John Scott, a Scottish chemist who died in 1916, to reward those whose work "adds to the comfort, welfare and happiness of mankind." The original bequest was only $4,000 and the award $20, but by 1919 the trust had increased to more than $100,000 and courts granted the increase in the award. Winners of the award in recent years are Philip Drinker, Ch.E., and Louis Agassiz Shaw, A.B., Boston, inventors of the artificial respirator; and Dr. George R. Minot, Boston, for his introduction of the liver treatment for pernicious anemia.

NORTH CAROLINA

Personal.—Dr. John S. Anderson, New Bern, has been appointed health officer of Craven County.——Dr. William Blair Hunter, Gastonia, has been appointed health officer of Harnett County.——Dr. Harold D. Brewster, clinical director of the Veterans' Administration Facility at Oteen for nine years, has been transferred to the facility at Legion, Texas, and will be succeeded by Dr. Carrol L. Moore, clinical director at the Legion facility.

Public Health Meeting.—Dr. Roderick M. Buie, Greensboro, was elected president of the North Carolina Public Health Association at the annual meeting in Asheville, May 4. Among speakers were Drs. James A. Hayne, Columbia, state health officer of South Carolina, on "Maternal and Child Health"; Mark V. Ziegler of the U. S. Public Health Service, "Determining Community Health Needs," and Alexander C. Bulla, Raleigh, "Poliomyelitis and the Public."

Society News.—A symposium on renal calculi was presented before the Mecklenburg County Medical Society, Charlotte, June 2, by Drs. Claude B. Squires and Robert W. McKay, Charlotte, and William M. Coppridge, Durham.——Dr. Staige D. Blackford, Charlottesville, Va., addressed the Guilford County Medical Society, Greensboro, June 4, on "Chronic Duodenal Ileus."——Dr. Le Grand Guerry, Columbia, S. C., addressed the Buncombe County Medical Society, Asheville, May 18, on "Management of Late Cases of Suppurative Appendicitis."

OHIO

Society News.—Dr. Henry Wagener, Rochester, Minn., addressed the Columbus Academy of Medicine, May 4, on "Vascular Lesions of the Retina," at a joint meeting with the Columbus Ophthalmological and Otolaryngological Society.——Dr. Oscar V. Batson, Philadelphia, addressed the Summit County Medical Society, Akron, May 5, on "Veins of the Head and Neck as Related to the Problems of Otolaryngology."——The Akron Academy of Ophthalmology and Otolaryngology was formed in April with Drs. Louis E. Brown as president, Elmer L. Mather, vice president, and Clare R. Andersen, secretary.——Drs. Bruce H. Douglas and David S. Brachman, Detroit, addressed the Toledo Academy of Medicine, June 5, on "Childhood Tuberculosis" and "Tuberculosis in the High Schools of Detroit" respectively.——Dr. Elias Potter Lyon of the University of Minnesota Medical School, Minneapolis, gave the annual Alpha Omega Alpha address of the Academy of Medicine of Cincinnati, May 19.——Dr. Theodore T. Zuck, Cleveland, addressed the Tuscarawas County Medical Society, Uhrichsville, May 14, on "Clinical Application of Recent Endocrine Studies of Human Development."——Dr. Charles R. Hoskins, Athens, presented a paper on "Recent Advances in the Surgical Treatment of Facial Paralysis" at a meeting of the Athens County Medical Society, Nelsonville, May 4.

PENNSYLVANIA

County Society Clinic.—The Westmoreland County Medical Society held its annual clinic at the Latrobe Hospital, Latrobe, June 3. At the morning session guest speakers were Drs. John I. Wiseman, Torrance, on "Symptoms of Incipient Dementia Praecox"; Harold M. Griffith, Johnstown, "Ophthalmology for the General Practitioner"; Leo H. Criep, Pittsburgh, "Management of the Allergic Patient"; Zoe A. Johnston, Pittsburgh, "Radium and X-Ray Therapy in the Treatment of Malignant Diseases"; Elliott B. Edie, Uniontown, "The Eye in Medical Diagnosis," and Bernard J. McCloskey, Johnstown, "Noninflammatory Diseases of the Appendix." Dr. Louis Hamman, Baltimore, conducted a medical clinic and Dr. John C. Hirst, Philadelphia, a surgical clinic in the afternoon. At a dinner meeting at the Latrobe Country Club, Dr. Hamman and Dr. Hirst gave addresses.

Philadelphia

Personal.—Dr. Frederick D. Weidman was recently made a corresponding member of the Austrian Dermatologic Society.——Dr. Joseph McFarland, professor of pathology in the University of Pennsylvania School of Medicine, retired June 30, having reached the age limit. He remains as professor of pathology in the Evans Dental Institute and the Veterinary Medical School of the University.

Promotions at Jefferson College.—The following promotions in the faculty of Jefferson Medical College have been made during the year just passed:

Dr. John B. Flick, to be associate professor of surgery.
Dr. Henry K. Mohler, associate professor of therapeutics.
Dr. Lewis C. Scheffey, associate professor of gynecology.
Dr. Henry K. Seelaus, assistant professor of surgery.
Dr. Harold L. Stewart, assistant professor of pathology.
Dr. David R. Morgan, assistant professor of pathology.
Dr. Adolph A. Walkling, assistant professor of surgery.
Dr. William H. Schmidt, assistant professor of physical therapy in the department of neurology.

Dr. David M. Davis, formerly of Phoenix, Ariz., was appointed professor of genito-urinary surgery during the year.

Pittsburgh

University News.—The University of Pittsburgh School of Medicine conducted its annual clinic for the graduating class, alumni and members of the medical profession, May 23. The guest speaker was Dr. John N. Hayes, Saranac Lake, on "Some Recent Tendencies in the Treatment of Tuberculosis." Dr. Irvin D. Metzger, chairman of the state board of medical education and licensure, received the honorary degree of doctor of science at the commencement exercises, June 10. Dr. Rutherford T. Johnstone has recently resigned as assistant professor of medicine, having removed to Los Angeles to live.

RHODE ISLAND

State Medical Election.—Dr. Walter C. Rocheleau, Woonsocket, was named president-elect of the Rhode Island Medical Society at the annual meeting, June 3, and Dr. Guy W. Wells, Providence, secretary. Dr. John E. Donley, Providence, was installed as president. The next meeting of the society will be in Providence.

TENNESSEE

Institute on Malaria Control.—The Tennessee Department of Health sponsored an institute on malaria control at Jackson, May 26. Among the speakers were Drs. Eugene L. Bishop, Knoxville, director of health for the Tennessee Valley Authority, who discussed "The Malaria Problem in Tennessee and the Surrounding Area"; Henry E. Meleney, Nashville, "Medical Preventive Measures"; Robert B. Watson, Wilson Dam, Ala., "Epidemiology of Malaria"; Robert C. Derivaux, Nashville, "Medical Curative Measures."

Tennessee Valley Meeting.—Dr. Edward A. Guynes, Knoxville, was chosen president-elect of the Tennessee Valley Medical Association at the second annual meeting in Knoxville, June 10-12, and Dr. Tom R. Barry, Knoxville, was installed as president. Speakers on the scientific program included:

Dr. James S. McLester, Birmingham, Common Forms of Nutritive Failure.
Dr. Raymond A. Vonderlehr, U. S. Public Health Service, Washington, D. C., Public Health Aspects of Syphilis.
Dr. Chauncey C. Maher, Chicago, Hypertensive Vascular Disease.
Dr. Leon Herman, Philadelphia, Obstructive Lesions of the Upper Urinary Tract.
Dr. Hayes E. Martin, New York, Curability of Intra-Oral Cancer by Modern Therapeutic Methods.
Dr. Walter C. Alvarez, Rochester, Minn., Helpful Hints in Diagnosing Gastro-Intestinal Disease.
Dr. Austin A. Hayden, Chicago, The Problem of the Hard of Hearing Patient.

Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, gave an address at the banquet Thursday evening, June 11.

TEXAS

State Medical Election.—Dr. Calvin R. Hannah, Dallas, was chosen president-elect of the State Medical Association of Texas at the annual session in Houston, May 27, and Dr. Howard R. Dudgeon, Waco, was installed as president. Vice presidents elected were Drs. Wilburn C. Williams, San Marcos; Samuel D. Whitten, Greenville, and R. Spencer Wood, Waco. The next session will be held in Fort Worth.

Health at El Paso.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million indicate that for the week ended June 20 the highest mortality rate (20.6) appears for El Paso, the rate for the group of cities as a whole being 10.8. The rate for El Paso for the corresponding period last year was 13.9 and for the group of cities, 10.9. The annual rate for eighty-six cities was 13 for the twenty-five weeks of 1936, as against a rate of 12.3 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

GENERAL

Diploma Stolen.—Dr. Jerome Matthew Brosnan, Chicago, reports that his diploma from Loyola University School of Medicine disappeared from his room in the Little Company of Mary Hospital the day following graduation, June 11.

Winners in Rural Health Contest.—Winning counties in the second annual interchamber rural health conservation contest, conducted by the United States Chamber of Commerce and the American Public Health Association, were Westchester County, N. Y., northeastern division; Davidson County, Tenn., eastern division; Shawnee County, Kan., north central division; El Paso County, Texas, south central division; Glynn County, Ga., southeastern division, and Santa Barbara County, Calif., western division. The contest was limited to counties and districts having full time health services, of which 160 enrolled. Expenses of the contest were borne by the W. K. Kellogg Foundation, Battle Creek, Mich.

Conference on College Hygiene.—Announcement is made of the Second National Conference on College Hygiene, to be held at the Wardman Park Hotel, Washington, D. C., December 28-31, under the joint sponsorship of the American Student Health Association, the National Health Council and the Presidents' Committee of Fifty on College Hygiene. The first conference, called by the same sponsors, was held at Syracuse University, Syracuse, N. Y., in 1931. There will be no formal program with prepared addresses. The work will be divided into five sections: health service, health teaching, organization and correlation, special problems and relationship of college hygiene to teacher training and secondary education. Dr. Livingston Farrand, president of Cornell University, Ithaca, N. Y., is chairman of the conference and Dr. William F. Snow, New York, is chairman of the organizing committee. Dr. Hugh S.

Cumming, former surgeon general of the U. S. Public Health Service, is chairman of the Washington committee on arrangements. The executive office is at Room 828, 50 West Fiftieth Street, New York, with Miss Louise Strachan as secretary.

Pacific Northwest Medical Association.—The fifteenth annual meeting of the Pacific Northwest Medical Association will be held in Portland, Ore., July 8-11. Guest speakers will be:

Dr. Lewis J. Pollock, Chicago, Epilepsy; Differential Nervous System Diseases.
Dr. Chevalier Jackson, Philadelphia, Cancer of the Larynx; Bronchoscopy in Diagnosis and Treatment of Diseases of the Lung.
Dr. Ray M. Balyeat, Oklahoma City, Gastro-Intestinal Allergy; Allergic Problems in General Practice; Intractable Asthma.
Dr. Carl Henry Davis, Milwaukee, Prophylactic Treatment of Thyroid Disease; Diseases of the Cervix Uteri.
Dr. David J. Davis, Chicago, Streptococcus Infections; Principles and Pathogenesis of Diseases of the Respiratory Tract; Pulmonary Abscess and Gangrene.
Dr. Paul J. Hanzlik, San Francisco, Vasomotor Tissue Extracts in Circulatory Disease; Diuretic and Antiedemic Drugs; Bismuth in the Treatment of Syphilis.
Walter J. Meek, Ph.D., Madison, Wis., Physiologic Background of Heart Diseases; Traumatic Shock; Beginning of American Physiology.
Dr. Alexis F. Hartmann, St. Louis, Vomiting in the New-Born; Acidosis and Alkalosis; Otitis Media and Complications.
Dr. Russell L. Cecil, New York, Pneumonia; Arthritis; Influenza and the Common Cold.
Dr. Cyrus C. Sturgis, Ann Arbor, Mich., Physiology of Blood in Relation to the Anemias; Diseases Associated with Abnormalities of White Blood Cells; Periodic Loss of Consciousness.
Dr. Roy D. McClure, Detroit, Artificial Fever Therapy; Goiter and Iodized Salt; Burns—Tannic Acid Treatment.
Dr. Harry E. Mock, Chicago, Surgical Conditions of the Abdomen; Reconstructive Surgery; Craniocerebral Injuries.

American Association of History of Medicine.—Dr. Henry E. Sigerist, Baltimore, was chosen president of the American Association of the History of Medicine at its annual meeting in Atlantic City, May 4; Dr. Esmond R. Long, Philadelphia, vice president, and Dr. Edward J. G. Beardsley, Philadelphia. Speakers included the following physicians:

Dr. Joseph H. Pratt, Boston, John Warren, the Father of the Harvard Medical School.
Dr. Edwin Robert Wiese, Philadelphia, The Status and Practice of Medicine in Imperial Rome.
Dr. Long, Concepts of Cardiac Pathology Before Morgagni.
Dr. Sanford V. Larkey, Baltimore, Children and Witches.
Dr. Michael L. Ravitch, New York, Dr. Pirogoff, the Russian John Hunter.
Dr. John R. Oliver, Baltimore, Spontaneous Combustion, a Literary Curiosity.
Dr. Louis H. Clerf, Philadelphia, Historical Notes on Foreign Bodies in the Food and Air Passages.
Ludwig Edelstein, Ph.D., Baltimore, Greek Medicine in Its Relation to Religion.
Dr. Robert H. Halsey, New York, The Correspondence Between President Jefferson and Dr. Waterhouse and Its Bearing on the Introduction of Smallpox Vaccination.
Dr. Owsei Temkin, Baltimore, Haller's Scientific Controversies.

The dinner session was addressed by Dr. Edward B. Krumbhaar, Philadelphia, on "Notes and Impressions of the Tenth International Congress held in Madrid in September 1935"; Dr. Sigerist, "The Social History of Medicine," and Dr. Howard Dittrick, Cleveland, "Some Old Hospitals in Spain," illustrated.

FOREIGN

Society News.—The sixth session of the "International Office of Documentation of Military Medicine" will be held in Geneva, Switzerland, October 12-14. All officers of the military medical services are invited. Those who wish to attend are requested to notify Dr. Voncken, director of the organization, Liége, Belgium, before September 1.——The annual meeting of the International Society of Medical Hydrology will be held in Austria, October 10-16, opening at Innsbruck. The party will proceed to Badgastein and from there to Salzburg. The subjects for discussion are "Spa Treatment of Disorders of Old Age" and "Radioactivity in Medicinal Waters." Full details may be obtained from the General Secretary, International Society of Medical Hydrology, 109 Kingsway, London, W. C. 2.

Society to Promote Electrotherapy.—The Duchenne Society was recently organized in England to promote the ethical and rational use of electrotherapy. Members are Prof. Walter J.. Turrell, Oxford; Sir Morton W. Smart, Drs. Elkin P. Cumberbath, C. A. Robinson, Francis Howard Humphris and Philippe Bauwens. Lord Horder was elected medical consultant; Prof. Jean d'Arsonval, Paris, and Dr. Norman E. Titus, New York, foreign honorary consultants for France and the United States, respectively.

Congress of Otorhinolaryngology.—The third International Otorhinolaryngological Congress will be held in Berlin, August 17-22. Subjects to be discussed are radiotherapy of malignant tumors of the nose and throat; electro-auditory apparatus for aids to hearing and for examination of the hearing; and influence of constitution on disorders of the ear, nose and throat. Those wishing to participate are requested to send their registration by August 1. The secretary general of the congress is Dr. Klaus Vogel, Berlin NW 7, Luisenstrasse 11-13.

Government Services

Changes in Public Health Service

Dr. Robert Olesen, medical director, U. S. Public Health Service, has been detailed as assistant surgeon general in charge of the division of sanitary reports and statistics, effective June 1. He succeeds Dr. Ralph C. Williams, who has been relieved as assistant surgeon general and assigned to duty as medical director of the rural resettlement administration with headquarters in Washington, D. C. Dr. Roscoe R. Spencer, senior surgeon, has been directed to report for duty in the division of sanitary reports and statistics. Surg. Calvin C. Applewhite has been relieved from duty as regional consultant for the New England district and directed to Chicago to assume charge as regional consultant for district number 3, succeeding Dr. Knox E. Miller. Dr. Carroll E. Palmer has been appointed and commissioned as passed assistant surgeon in the regular corps of the public health service.

Second Year Internships Available in Public Health Service

The U. S. Public Health Service announces that applications for second year internships will be received from physicians not over 30 years old who have graduated from class A medical colleges and who will have completed one year's internship at an approved hospital following graduation. It is especially desired to receive applications from candidates interested in the service as a career. No written examination is required. Candidates appointed for duty at Marine Hospitals and U. S. Narcotic Farms will receive a gross pay of $1,800 a year, from which a deduction of $690 a year will be made if quarters, subsistence and laundry are furnished. Those assigned to the federal penal and correctional institutions will receive $1,620 a year, from which $240 will be deducted if quarters, subsistence and laundry are furnished. When quarters are furnished they cannot be shared by the intern's dependents. Appointments will be made with the understanding that those appointed will have opportunity to take the next examination for appointment as assistant surgeon in the regular corps. Persons desiring to make application should communicate at once with the Surgeon General, U. S. Public Health Service, Washington, D. C., stating definitely that they are interested in a second year internship.

March a Record Month for Food and Drug Administration

Foods damaged by floods in the Eastern states brought a problem to federal and local officials during March, the Food and Drug Administration reports. Much of the damaged food was destroyed on the spot. Foods in transit or shipped in a damaged condition immediately after the floods were followed up by federal agents. Local officials in twenty-two cities report the destruction of 390 tons of fresh fruits and vegetables, coffee, tea, candy, cereals, flour, beans, dessert preparations, meats, shortenings, butter, dried fruits and nuts, spices and drugs. This does not include hundreds of small lots; in Pittsburgh, where damage was enormous, no estimate of condemned foodstuffs was attempted. Actions under the federal law to date have included seizures of 580,900 pounds of sacked feeds, 25 tons of corn, 200 bags of unroasted coffee, 11,410 pounds of coffee and one shipment of candy. Aside from the flood emergency, the administration reports the largest seizure month on record. Most important of the seizures was the result of a campaign to stop adulteration of olive oil, most of which was done in Massachusetts and New York. Nearly 49,000 containers holding a total of 11,255 gallons of olive oil adulterated with tea seed oil, most of it to the extent of 70 per cent, were seized. Second on the list in point of quantity seized were preserves deficient in fruit, of which 10,000 jars were confiscated. Mislabeled foods, grossly contaminated canned foods and shortweight packages made up the rest of the month's seizures. Dangerous drugs seized included a substandard pituitary solution, rubbing alcohol made up with isopropyl alcohol and an iodine compound. Numerous preparations labeled with cure-all claims were also included.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 16, 1936.

The International Congress of Physical Medicine

The sixth International Congress of Physical Medicine has been held in London. The honorary president, Lord Horder, was unable to attend owing to his previous acceptance of the invitation of the American Medical Association to attend the Kansas City session. Sir Robert Stanton Woods presided. In his presidential address, read by the honorary secretary, Lord Horder said that it was the glory of medicine, like Bacon, that it took all knowledge for its province. It was the child of all the sciences, and the best doctor was he who attached himself to no system and no sect but made use of every available piece of knowledge in the patient's interest. He welcomed the inclusion of a section of physical medicine in the medical schools. For many years he had urged its claims and he was gratified that its progress, which he predicted more than ten years ago, had been amply fulfilled. The practice of physical medicine should be kept under scientific control, which could be achieved only by a close liaison between the physical therapist and the physicist. The physical therapist should constantly realize that his approach must primarily be a clinical one. In proportion as he tended to isolate himself he lessened the benefits he could confer, for it was the patient and his reactions that constituted the official arbiter of results, whether in diagnosis or in treatment, and it was the clinician who could best judge these.

PHYSICAL EDUCATION

Lord Dawson said that it was remarkable that the teaching of the golden age of Greece, with its ideal of equal training of body and of mind, should for centuries have disappeared. Denmark was the first modern country to make physical education an essential part of the curriculum of its schools. Ling, whose system influenced physical education throughout the world, soon followed. Great Britain had been the home of games and sports while continental countries were formulating their systems of gymnastics. Not until 1909 was physical education established in the elementary schools. He did not think that games could replace physical education. Proficiency in them was compatible with defects of frame or function, which might not make themselves felt until manhood, when they became a progressive handicap. Some games, unless correlated with physical education, were liable to overstrain their votaries and impair health later in life. Equally physical education could not replace sport and games, for rivalry and the team spirit could not be derived from the former. Physical education was an increasing necessity in modern life. Formerly, when there were no organized social services to protect weak and damaged stocks, natural selection operated more effectively. Today they were preserved and it was the more necessary, therefore, to build them up. The physician, with his knowledge of the structure and functions of the body, should be associated with physical education. Early divergencies from normal development would thus be corrected at school.

THE HYGIENE OF SPORT

Sir Leonard Hill said that, in the well trained, 20 or 30 per cent of the energy used in exercise was spent as work and the rest as heat, but any defect, such as sore feet or an ill balanced pack in the marching of a soldier or the crouching position of the miner, wastefully increased the energy output. Training brought about an enriched blood stream, a greater capacity for deep breathing, a building up of muscle, with loss of superfluous fat. Up to 18,000 feet Everest climbers improved; beyond that oxygen want came into play and degeneration began. But with an oxygen-breathing apparatus the climber could be made as efficient at 29,000 feet as at sea level. By breathing oxygen at the start of a race, athletes had run the half or quarter mile within a second or two of their record runs. Breathing oxygen afterward prevented all leg stiffness and made them ready to run again. Sir Leonard Hill held that skilled movement was the basis of mental equipment. Yet 70 per cent of our youth between the ages of 14 and 18 did not participate adequately in physical training. At the universities, boys were promoted without due consideration of their physique.

The Prevention of Blindness

The Standing Committee on the Prevention of Blindness of the Union of Counties Associations for the Blind has presented an important report. The committee consists of ophthalmologists, health officers and others interested in the problem of the blind. They state that there is at the present day much blindness which might have been prevented if suitable precautions had been taken in time. There is also a definite number of cases in which some degree of useful sight can be restored by proper measures. These two factors led to the formation of the committee. In England the movement for prevention of blindness began about 1879. The London Society for the Prevention of Blindness was formed, of which Dr. Roth was the honorary secretary. In a paper read at a conference in 1883 he enumerated four forms of ignorance as among the more important causes of blindness; (1) ignorance regarding ocular hygiene of mothers and nurses and all those to whom the care of children is entrusted; (2) ignorance of schoolmasters and school mistresses in matters of health and physical education; (3) ignorance and neglect of the working classes regarding influences affecting their general health and causing diseases of the eyes; (4) ignorance of many physicians with regard to eye diseases. This society did not survive long but it was the first organized movement for the prevention of blindness in this country.

In 1889 the Royal Commission on the Blind recommended that the intermarriage of the blind should be discouraged, that information on the treatment of purulent ophthalmia should be circulated by sanitary authorities or through the post office, that school children with defective sight should be periodically examined and glasses ordered, and that greater attention to ophthalmology should be encouraged among physicians. In 1909 the notification of ophthalmia neonatorum was made compulsory. In 1923 the General Medical Council made the instruction in ophthalmology of every medical student compulsory. But the standing committee holds that the present arrangements do not secure that in general the physician has the requisite knowledge of ophthalmology and it considers that the matter should continue to receive the close attention of the curriculum committee of the General Medical Council.

The standing committees make a number of recommendations. It is essential that squint and amblyopia associated with it should be treated as early as possible. Improvement in children's surroundings and early treatment, particularly in open air schools, would markedly reduce the ravages of phlyctenular disease. Sympathetic ophthalmia must still be reckoned with as a serious danger, especially when a foreign body has perforated the eye and is retained within the globe or when it is known that the ciliary region has been affected. The outlook is always serious, and it still seems necessary to emphasize the importance of removing immediately an eye so seriously injured that there is no possibility of useful sight. Glaucoma proceeds so insidiously that it may pass unnoticed for years unless the eyes are properly examined. The patient may think it is only a matter of buying stronger glasses and may so obtain temporary improvement in sight, yet the field of vision may be

slowly contracting with less hope from subsequent operation. A comprehensive and adequate system of antepartum supervision is important as a means of safeguarding the sight of both mother and child. A liaison should be maintained with the centers for the treatment of venereal disease. Ophthalmia neonatorum requires such constant attention and such skilled nursing that it is best treated in a hospital. For prophylaxis the use of 1 per cent silver nitrate should be included in the training of every midwife. The visual conditions of children should be examined as soon as possible after entry into school. As myopia may seriously progress in adolescence, supervision by the ophthalmologist after leaving school may diminish the risk of subsequent blindness. The greatest risk of occupational blindness occurs in metal working, from splashing in chemical processes, and in stone dressing. The eyes should be protected by goggles or a screen fixed to the machine. The risk to the eye is particularly heavy in coal mines and in quarries raising igneous rock. Proper medical attention should be sought immediately after all eye injuries, as those which may seem trivial may turn out to be serious.

Gift for Research to the Cavendish Laboratory

Sir Herbert Austin, the automobile manufacturer, has made the munificient gift of $1,250,000 to the famous Cavendish laboratory at Cambridge University. In acknowledging it the director, Lord Rutherford, says that it will give an opportunity of building a modern research laboratory and will also be of great value in helping to defray the large expenditure required for modern research in physics. The first use of the money will be to build a laboratory for the utilization of very high voltages, in order to carry out experiments on the transmutation of matter by high speed particles and by radiation.

The laboratory perpetuates the name of one of the greatest experimenters, Henry Cavendish, who discovered the composition of water. The successive directors bear names too great for any praise—Clerk Maxwell, Lord Rayleigh, Sir J. J. Thomson, Lord Rutherford. Among the advances made in the laboratory was the discovery of the electron in 1897 and of the neutron in 1932. Of remarkable apparatus in use there may be mentioned Prof. C. T. R. Wilson's cloud chamber, in which the tracks of atomic particles have been photographed, and Dr. F. W. Aston's mass spectrograph, by which individual atoms can be weighed.

Medical Refugees in England

In the house of commons it was officially stated in reply to a question that since March 1935 refugees who have applied for permission to reside in this country for the purpose of medical study have been informed that permission can be granted only on the understanding that after qualifying they will not establish themselves in practice in the United Kingdom but will leave the country. However, among the refugee physicians who came before that date 148 have been granted permission to practice after they have obtained a British medical qualification. This permission has been granted on various special grounds. In some cases of eminent physicians having special attainments their colleagues in this country have asked that they be allowed to practice here.

Karl Pearson

By the death of Prof. Karl Pearson in his eightieth year is removed a man who was not a physician but who rendered unique service to medicine by placing its statistical methods on a scientific basis. A mathematician with a distinguished university career, he was appointed to the chair of applied mathematics at University College, London. He was early attracted by the work of another great pioneer, Francis Galton, a cousin of Charles Darwin and the founder of the science of human heredity. His books on "Hereditary Genius" and "Noteworthy Families" are well known. His investigations brought him up against the fundamental principles of statistics, for which his mathematical knowledge was insufficient. Pearson supplied the deficiency. Galton originated the science of eugenics, to which he gave that name. He founded the chair of eugenics at University College by the munificent endowment of $225,000 and, according to his wish, Pearson became the first professor. He was also director of the Galton Laboratory of Eugenics at the same college. With the approval and support of Galton he founded the journal *Biometrika*. He was editor of the *Annals of Eugenics*. He gathered round him a number of pupils who became distinguished later. Among these may be mentioned L. N. G. Filon, F.R.S., recently vice chancellor of the University of London, Prof. Major Greenwood, F.R.S., a well known authority on vital statistics, and Prof. Raymond Pearl of Johns Hopkins University. It was Pearson who taught medical writers how to use statistics scientifically. At first his criticisms of their methods aroused much opposition, but he prevailed in the end. The extent of his activities was enormous; they ranged over pure mathematics, mathematical statistics, philosophy, history, anthropology and eugenics.

PARIS

(From Our Regular Correspondent)

May 15, 1936.

Complication Following Treatment with Gold Salts

A warning about the treatment of pulmonary tuberculosis with gold salts was sounded by E. Bernard and M. Morin at the Société médicale des hôpitaux of Paris, March 20. A woman, aged 27, had been ill since May 1935. Radiography in July of that year revealed a tuberculous cavity in the left upper lobe, and tubercle bacilli were found in the sputum. A pneumothorax treatment having been unsuccessful, a phrenicectomy was performed July 20, and administration of gold salts begun. The total dose given up to October 4, a period of ten weeks, was 4.05 Gm. Signs of stomatitis then appeared. The neurologic symptoms appeared October 10 in the form of almost intolerable pains of a lancinating character in the right arm and leg, accompanied by bilateral muscular fibrillation. Psychic disturbances took the form of restlessness, insomnia and the desire to commit suicide, at the end of the series of injections, and were due to the gold salts alone, because all other causes of toxemia could be excluded. The total dose given could not be considered toxic, but in the case of gold salts, as in the administration of the salts of arsenic, the complications do not appear after a single or several injections but at the end of the treatment. It would appear as if the metal had a special affinity for certain tissues. Similar cases have been reported by a number of authors, in which all four extremities (Gernez), both legs (Beyerholm, Alajouanine, Berthier), both arms (Lambea) or only one limb (Jzanck) was involved.

Stomatitis Due to Administration of Gold Salts

At the March 27 meeting of the Société médicale des hôpitaux of Paris, Charles Flandin and his associates reported two cases of severe stomatitis following the use of gold salts. As a rule, the stomatitis develops rapidly and is relatively benign, recovery taking place after a short interval. Even when ulceration occurs, it is exceptional for healing to require more than a month. In addition to this acute form, the stomatitis may develop slowly, as in the two cases observed by Flandin and associates. In one of these, 1.8 Gm. of a gold salt was given over a period of seven weeks for an acute pulmonary congestion in a man, aged 49, the examination of whose expectoration had revealed, twelve years previously, the presence of tubercle bacilli. The gold salt therapy had been followed by a lichen-like cuta-

neous eruption and a subacute stomatitis, which was of seven months' duration when the patient was first seen by Flandin. In the second case, a psoriasis which had resisted all treatment was treated by 7 cc. of a suspension in oil of a gold salt. This was followed by the appearance of an acute colonitis and ulcerative stomatitis, which became subacute four months after the onset. The colonitis persisted for more than a year. The stomatitis in the form of recurrent superficial erosions persisted for two years. Clinically this chronic type resembles closely the more benign acute form, but the former differs from the latter in being resistant to all local and general treatment as long as the gold salt treatment is continued.

Flandin stated that this stomatitis, when considered in conjunction with others previously reported, should lead one to be cautious in using gold salts, especially in view of the fact that the efficacy of the treatment in pulmonary tuberculosis is questionable.

Relation of Gastric and Duodenal Ulcers to Appendicitis

At the March 20 meeting of the Société médicale des hôpitaux of Paris Charles Flandin reported a case in which persistent gastric symptoms had been present during the preceding two years. A diagnosis had been made of chronic appendicitis with accompanying gastric symptoms. The clinical picture was that of an acute appendicitis, but the possibility of the perforation of a gastric ulcer was kept in mind because the pain at the onset had been in the gastric region. An emergency operation performed three hours after the onset revealed a large appendix, nonperforated but filled with yellowish pus and a fecalith. When the peritoneal cavity over the appendix region was opened, a brownish mucoid fluid escaped; hence in the absence of a perforated appendix an exploration of the stomach and duodenum was indicated. This revealed the perforation of a gastric ulcer in the prepyloric area. Recovery was uneventful. Flandin was of the opinion that the removal of the appendix should have been done when the diagnosis of chronic appendicitis was made two years previously to avoid gastric complications.

In the second paper, Brodin and Tedesco stated that the frequency with which appendicitis and ulcer of the stomach or duodenum has been observed indicates that a causal relation exists between the two conditions. Either they have a common etiology or the presence of one favors the development of the other. The authors believed that the focus in the appendix was the primary one and that the infection reaches the gastroduodenal region by way of the lymphatics of the ileocecal angle. The lymphatics from the appendix cross the third portion of the duodenum with the mesenteric vessels as Braithwaite, Basset and Beule have shown. An inflammation of these lymphatics gives rise to a spasm of this third portion of the duodenum with resultant proximal stasis and alteration of the chemical constituents of the duodenal contents.

A case illustrating a correlation of an appendicitis and duodenal ulcer was cited by Brodin and Tedesco. A man, aged 33, had recurrent attacks of appendicitis over a period of eighteen months. About three years after an appendectomy, three attacks of pain over the gastric region accompanied by vomiting occurred during the following three years. Radiography revealed a dilated duodenum. At operation, in addition to this condition, adhesions were found at the duodenojejunal junction. About thirteen months later, several severe hemorrhages occurred, which had their origin in a duodenal ulcer, as shown at a second operation. The authors are of the opinion that, if evidence of duodenal retention due to spasm in its third portion is found in a patient with appendicitis, early operation is indicated to avoid gastric or duodenal ulcer.

Acute Dilatation of Stomach Following Artificial Pneumothorax

Although this condition is well known as a postoperative complication, and following severe abdominal injuries (not operated on), its occurrence as an accompaniment of certain nonsurgical lesions is not yet well known.

Jacob and Dupuy reported a case at the March 13 meeting of the Société médicale des hôpitaux of Paris of acute gastric dilatation after thoracentesis to relieve pressure symptoms after an artificial pneumothorax. A woman, aged 30, had been given nine insufflations of air into the pleural cavity as part of the treatment of a rightsided pulmonary tuberculosis. The last treatment was given May 6, 1935. Four days later, symptoms of a severe pleural reaction appeared with displacement, by exudate and air, of the mediastinum toward the left side of the thorax. Decompression was done May 22 by aspiration of 325 cc. of air from the right pleural cavity. On the same day and for several days following this procedure, the patient vomited large quantities of bile stained fluid without effort, a symptom often seen in acute gastric dilatation. After repeated gastric lavage, supplemented by the administration of large amounts of saline solutions, the vomiting ceased. The sudden onset of the symptoms of acute gastric dilatation after the thoracentesis was due to reflex inhibition of the musculature of the stomach, in the opinion of Jacob and Dupuy. They cited a similar case of Papin's, following internal urethrotomy for stricture. The acute gastric dilatation symptoms appeared half an hour after the intervention.

BERLIN

(From Our Regular Correspondent)

May 6, 1936.

News of the Student Bodies

Since the last report on the faculties and student bodies of German universities (THE JOURNAL, Dec. 7, 1935, p. 1926), several changes have taken place. The maximal numbers of students allocated to the various universities have again undergone slight reduction for most of the institutions, and (what is illuminating and characteristic) this has been done "in consideration of the anticipated decline in the student population."

Rumors, all officially denied, have had it that several universities or departments of universities were to be suspended. It was first reported that Frankfort-on-the-Main was the school in question; later, similar rumors were circulated with regard to the Universities of Halle, Giessen and Cologne.

The number of preferred categories of candidates for admission has been augmented to include persons belonging to such National Socialist organizations as the SA [Sturm-Abteilung] and the SS [Schutzstaffel] (both well known older party groups), the Hitler Youth and the League of German Girls (that is the two young people's organizations) and the Nazi Motor Corps. Also considered eligible for admission are students who have completed two semesters' study in a nonquota (a less important) university and who intend to return later to their original institutions. On the other hand the rector of a university may investigate the status of those students who have studied for longer than three semesters in a quota university.

The National Socialist studentenbund has recently pledged itself to bring the entire student body of the German universities within the membership of one or the other of the foregoing party organizations. All members or prospective members of the studentenbund have until May 1 to apply for membership in one of the foregoing Nazi organizations. Studentenbund members are in addition divided into "kameradschaften" of some thirty men each, and further there are the "stamm-mannschaften" (nuclear groups) of from thirty to sixty men each, according to the size of the university. The latter

must be politically tried and true students "who have already proved their National Socialist zeal for cooperative activity." Beginning with the next winter semester, the studentenbund will endeavor "to bring the developmental influence of the kameradschaft to all first to third semester students." Thus the National Socialist studentenbund is in a fair way to achieve complete and forceful subjection of entire student bodies to the Nazi program of indoctrination.

Two years ago a similar but unsuccessful attempt was made by the studentenbund to assume control of the club houses belonging to the old corps and other student societies and convert them into "kameradschaft houses." This offensive has now been renewed but with greater force. Admission to the studentenbund too has now been made more difficult. New members can be taken in only by special selection. Formerly the bund sought the largest possible membership, but its recruiting activities gathered in only a mediocre harvest (it is estimated that today about one third of the entire student body are bund members). So now the bund has reversed itself and adopted a policy of exclusiveness. Only a limited number of students may be "full members" of the bund, while, on the other hand, its program of "complete indoctrination" includes the entire student body. The stamm-mannschaft forms a sort of hierarchy which is expected to produce leaders.

By this latest offensive the last vestiges of individual freedom of action among the present generation of students has been swept away. In addition, it serves further to break the hold of the church on Roman Catholic students, since within the past year the Catholic student organizations have been disbanded.

Only recently reichsminister of public instruction Rust complained that the universities still failed to present a picture of complete integration within the National Socialist movement. "The nearer we approach the center of the old forces," said Rust, "the tougher appears the stuff of which they are made. So many difficulties beset the path to a complete intellectual transformation because so many men in the sphere of science and research are absolutely incapable of changing their ideology." Much that lives on in the academic realm is of yesterday and before yesterday. And the tragic part of it is that these forces of reaction are not yet opposed by a student body united in purpose. This fact (and here is a noteworthy utterance) must not be attributed to a lack of essential weltanschauung on the part of the students but rather to a certain sluggish reluctance to participate in cooperative action. The fight to be carried on in the universities is the struggle of the party.

Thus harsh words are rained on the universities from the highest governmental quarters. The National Socialist studentenbund, as its leader recently explained, wishes to end this procrastination once and for all. "No more compromises" is the group's new slogan. The complete suppression of the old student corporations or corps has not yet been effected despite all the previous efforts of a bund openly backed by the national government. The Kösener SC and other federations of the old fraternities were hastily disbanded last autumn, but on the other hand the individual corps in the various university towns have refused to disband in the face of repeated exhortations and appeals. Each corps has been existing on its own without any organized liaison.

A further development was the recent prohibition of simultaneous membership in a corporation and the National Socialist studentenbund, the latter group thus taking the simplest and most expeditious way out of the impasse. The burschenschaften have gone over to the bund in larger numbers, notably at Bonn and at Marburg, where the student fraternities were formerly extremely prominent. Only one burschenschaft remains, which still conducts its activities in the old manner.

The proceedings of a district convention of the studentenbund held in February at Cologne give a good idea of what the new type of German student will be like. Before this gathering the national führer of the studentenbund, Derichsweiler, dedicated a number of flags while a speaking chorus recited "May the banners of victory wave and may foul things vanish before them." In the front rank of the foul or decayed things referred to are the student corps.

The Nazi education of the student has yet another mission. "It must teach him sternly to oppose much that is expounded from the professorial chair—not that we intend to set up a supplementary body of learning—but that which is taught should have its roots in National Socialist doctrine. And we (students of the bund) will not hesitate to stamp on the floor and whistle in the lecture room should the instruction fall short of this standard." Such were the words of the official leader of the National Socialist studentenbund.

The state examinations offer a candidate the best opportunity for demonstrating his learning. Now, however, emphasis is being placed on personal deportment rather than on scholarship. The basic evaluations made of a student by all the Nazi organizations with which he comes in contact may well be of far-reaching effect. Under this system youthful peccadillos may be scored up against the individual for the rest of his life and a record of his misdeeds hover over him like a modern sword of Damocles. The concluding remarks of the führer of students may be quoted as characteristic. "The responsibility that we bear is enormous. It rests with each one of you whether or not in future any educator from the rector of a university to the village schoolmaster shall be a reactionary. The responsibility is now ours. Our organization of young men has gotten its stride. Those of us who attended the bund's decennial celebration at Munich were filled with enthusiasm but at the same time with fierce anger against those men who believe that their heyday will come again and that they, like phoenix, shall arise from the ashes. For the time dear to those who live in their yesterdays shall never return."

Selection of Healthy Students

As early as March of last year the minister of education issued regulations to govern admission to the gymnasiums. It was stipulated that youths having permanent disabilities serious enough to impair their vital powers as well as those deemed to be carriers of hereditary disease should be excluded from the secondary schools; further, that a young person who exhibits a habitual aversion to bodily cleanliness and who shows no disposition to overcome this fault shall be subject to expulsion from the secondary schools. Similarly, continued failure in physical education, above all if accompanied by an unwillingness to harden one's body and to participate in gymnastic and athletic activities, leads to expulsion unless the school physician and the instructor in physical education concur in a recommendation that the pupil be allowed to remain.

Recently, supplementary regulations have been issued on the part of the reichsminister of the interior. The medical officers who make the official examinations are to be guided by the following considerations: All youths presenting physical and mental defects which preclude the successful preparation for and practice of a profession must be classed as unconditionally unfit for admission to the secondary schools. Among such disqualifying defects are cardiac dysfunction with bad decompensation, severe asthma with persisting organic alterations, serious chronic kidney complaints, visual disturbances in which capacity is less than one third of normal or in which deterioration is to be anticipated, deaf-mutism, deafness and disorders of hearing equivalent to deafness, speech defects due to cleft palate, serious organic nervous and cerebral diseases, and dis-

eases of the endocrine system which are deemed incurable and which are accompanied by alterations of the intelligence and personality or tend to become progressive. In the latter category belong secondary encephalitic conditions, multiple sclerosis, Thomsen's disease, Friedreich's ataxia, syringomyelia, progressive muscular atrophy, myxedema and severe traumatic epilepsy. Further may be mentioned psychic disturbances as well as medically established feeblemindedness of low grade. Moral defects are especially to be noted among the feebleminded. Admission may be refused in cases of: epilepsy marked by severe and frequent fits or accompanied by loss of intelligence and modifications of personality; manic depressive insanity in severer forms; serious psychopathic states, especially constitutional instability; sexual degeneracy; drug addictions, and severe manifestations of hysteria.

Classed as temporarily unfit are youths with infectious diseases, disturbances such as chorea minor which lend themselves readily to imitation; petit mal, psychoses of toxic or infectious origin, and so on.

Hygienic and Political Considerations in Selecting Students

The reichsminister of education has just issued regulations with regard to hygienic and political considerations in the selection of university students. Selection is to be based on the results of official examinations, which are to be carried out during the first and fifth semesters in cooperation with the Bureau of Public Health of the National Socialist Party. "Unconditionally unfit" corresponds somewhat to the same term as applied to candidates for admission to the secondary schools. Carriers of hereditary disease are here similarly refused admission, and expulsion for reluctance to acquire physical hardihood by participation in physical exercise is also provided for. As conditionally unfit are classed those students whose physical and mental powers are so seriously impaired that the completion of a professional course and later successful pursuit of a career are problematic. Such candidates may be excluded from study.

This health service is financed by the obligatory contributions of the students and it is able to offer as detailed recommendations as any specializing clinic. An appeal may be taken from the decisions of the rector or the resident commission to the minister of education.

Prognosis in Tuberculosis of the Larynx

Dr. Arold discussed before the Giessen Medical Society the investigations conducted a few years ago by the newly erected Seltersberg Sanatorium. In the first two years of the sanatorium's existence it was possible to observe 157 patients with pulmonary and laryngeal tuberculosis. Of these 157 cases, forty-five ended fatally at the sanatorium. The 112 survivors were classified according to condition at time of discharge as follows: clinically healed larynx, thirty-six; considerable improvement, twenty-seven; indications of some improvement, fifteen; larynx condition deteriorated or unchanged, thirty-four. Four years subsequent to discharge from the sanatorium, fifty of these patients were ascertained to be living, thirteen could not be located and the remainder had died of severe progressive pulmonary tuberculosis. Follow-up examination of the fifty disclosed that in forty-eight the laryngeal disease had remained cured. Pulmonary examination of the latter number gave negative results in only twenty-five, while in the other twenty-three the pulmonary disease had advanced since discharge from Seltersberg. Records also showed that in several of the group who had died of pulmonary tuberculosis in the interim the larynx had remained free from the disease to the end. Permanent cure of the laryngeal condition took place both in cases involving limited laryngeal processes and those in which the area of involvement was more extensive. All these data evidence that prognosis in tuberculosis of the larynx depends not only on a tendency of the pulmonary processes to spread or an extension of the local process but also on the efficient carrying out of proper therapeutic measures.

Death of Prof. Hugo Sellheim

Dr. Hugo Sellheim of Leipzig, professor of obstetrics and gynecology, died suddenly not long after his retirement from active service. He had reached the age of 65. One of the most illustrious pupils of Hegar, Sellheim, while still young, was appointed ordinarius at Tübingen. Thence he went to Halle and since 1926 had occupied the Leipzig post. Sellheim did effective work in virtually every sphere of his specialty. His principal contributions, however, had to do with the mechanism of labor and the protection of the mother.

RIO DE JANEIRO

(From Our Regular Correspondent)

April 15, 1936.

Phrenicectomy in Pulmonary Tuberculosis

Dr. B. Fleury de Oliveira, in the meeting of phthisiologists at the Associação Paulista de Medicina, January 23, read a preliminary report on the mechanism of action of phrenicectomy in pulmonary tuberculosis with lesions either at the apex or at the base. The speaker, based on the modern conceptions on the mechanics of respiration, especially those of Monaldi and Parodi, says that phrenicectomy acts probably by the production of collapse if the lesions are located at the apex and by immobilization if they are located at the base of the lung. If these hypotheses were true, different circulatory conditions would exist in the apex and in the base after performance of phrenicectomy, regardless of the cure of the lesions located either at the apex or at the base. According to the speaker, certain failures of phrenicectomy in lesions of the base of the lung could be explained by these theories. He believes that one of the conditions for the success of phrenicectomy in the presence of lesions of the base is the cutting of pleural adhesions.

Pan-American Congress of Tuberculosis

The Union Latino-Americana das Sociedades de Tisiologia is composed of the antituberculous societies of Argentina, Brazil, Chile and Uruguay, each of which is represented by three advisers who are concerned with the organization of antituberculosis congresses. Advisers from Brazil are Drs. Antonio Cardoso Fontes and Ary Miranda of Rio de Janeiro and Clemente Ferreira of São Paulo. A congress of tuberculosis of the union has been recently organized, which will take place in the very near future. The medicosocial topic selected is "Organization of Crusades Against Tuberculosis in South America." Brazilian speakers on this topic are Drs. Marcos Antonio Nogueira Cardoso of São Paulo and Genesio Pitanga of Rio de Janeiro. The official topic for Brazil is "Diagnosis of Activity and Evolution of Pulmonary Tuberculosis." Speakers are Drs. Raphael Paula Souza, Antonio Tisi Netto and Fleury de Oliveira of São Paulo. Co-speakers are all members of the antituberculosis society of Rio de Janeiro.

Visceral Leishmaniasis

Dr. Evandro Chagas recently reported a case of visceral leishmaniasis. A white boy, aged 16, a resident of Aracajú, Sergipe, became ill during a visit to Santa Maria, Rio Grande do Sul, a year and a half previously, simultaneously with his mother and sister, who died a few months later. In the necropsy of the sister it was found that the liver was heavily infested with Leishmania. The patient suffered from chills, fever, either intermittent or irregular, weakness, air hunger, nasal hemor-

rhages, diarrhea, progressive emaciation and darkening of the skin and dehydration of the tissues. At present the fever is irregular, oscillating from 98 to 100.4 F. Emaciation is extreme and the abdomen is of enormous size because of the presence of hepatomegaly and splenomegaly. Diarrhea appears in frequent crises but there is no blood in the feces. There are no nervous, circulatory, respiratory or urogenital disturbances. The physical development is retarded, while the mentality is normal. Leishmania in large numbers, morphologically similar to Leishmania Donovani, could be seen on the slides prepared with the blood of the patient's spleen taken by a puncture. Some of the parasites were free in the blood but the greater number of them were contained in macrophages. The peripheral blood picture is as follows: hemoglobin 44 per cent, erythrocytes 2,919,000, hematocrits 19, reticulocytes 4 per cent, white cells 2,600. The percentage of monocytes was 34, lymphocytes 31, neutrophils 33, eosinophils 0 and basophils 0. Phlebotomus Longipalpis in great numbers was found at the city in which infestation of the patient occurred. This is the first clinical autochthonous case of kala-azar found in Brazil.

ITALY

(From Our Regular Correspondent)

April 22, 1936.

Congress of Psychologists

The eighth National Congress of Italian Psychologists was recently held at Rome under the chairmanship of Prof. Cesare Colucci. Fourteen articles were presented, followed by illuminating discussions. Professor Colucci emphasized that the didactic material already compiled suffices to carry on investigations for evaluation of the mental capacity. His statement is based on results of personal investigations performed in industrial and municipal schools. All psychologists admit that the unitary conception of personality and the collaboration of experience prevails also in psychology.

Professor Della Valle said that the influence of psychology should be felt in the schools as well as in individual and collective relationships. Professor Bonaventura said that psychology is a science essential to childhood and that the orientations of mental hygiene should be applied to child life as early as during the nursing period, at which time many psychic reactions develop. The evaluation of the psychic reactions of infants constitutes a branch of science called nepiology.

Professor Puca emphasized that the actual separation of insane asylums and neurologic clinics has resulted in advancement of the study of psychology. The maintenance of close bonds between experimental psychology and pathology is advisable also for the interest of normal psychology.

Professor Gemelli, dean of the Università Cattolica of Milan, spoke on the task of psychology in the study of delinquency. Psychologists should be especially concerned with investigations of this nature. The president of the congress, based on his experience in reviewing records of criminals and of young delinquents in houses of correction of Naples, said that tendencies to crime can be inhibited or moderated by education.

Colonel Sarfatti, based on his war experience, spoke on the psychology of the order to attack. Professor Della Valle discussed this type of psychology from the point of view of the influence of suggestion by the commander and of the complicated mental processes concerned in the narrowing of consciousness to the single aim of those who advance to the attack with complete self sacrifice.

Professor Colucci emphasized the several experimental and scientific fields that are open to psychologists, in the interpretation of children's drawings, of manuscripts of recluses and the examination of artistic documents. The next congress of psychology will take place in Naples.

Society Reunion

The Società Piemontese di Chirurgia held a reunion during which Professors Chiarolanza and Segré spoke on calcaneal fractures. Professor Chiarolanza's experience covers more than eighty-five cases. More than 104 roentgenograms showing varieties of calcaneal fractures form the collection of the speaker. Fractures of the inferior aspect of the calcaneum and isolated fractures of the plantar tuberosity are rare. As a rule the fracture starts at the upper aspect of the calcaneum and, as the fracture advances into the bone, one or more fractures are produced. At the operation many fractures are seen that were not seen in the roentgenograms. In more than 5,000 fractures treated in the Ospedale dei Pellegrini of Naples, only thirteen were calcaneal fractures. The enlargement of the calcaneum, the lowering of the malleoli, the fall of the plantar vault and the presence of pericalcaneal extravasation are important diagnostic symptoms. The speaker treated his cases first by immobilization and then by physical therapy.

Meeting of Accademia dei Fisiocritici

The Accademia dei fisiocritici met recently in Siena, under the chairmanship of Professor Spirito. Professor Martinetti reported the results of his experiments on the action of intravenous injections of hypertonic dextrose solution on intracranial pressure as well as on retinal pressure. The injection is followed by transient increase of the intracranial pressure and then by a progressive lowering of it, which lasts from twelve to fourteen hours. The lowering of the retinal pressure following the injection is a valuable index for determining the vasodilatation of the cerebral arteries. The speaker believes that the results of his experiments point out the advisability of using hypertonic solutions for therapeutic purposes.

Professors D'Antona and Valensin spoke on the immunizing value of diphtheritic anatoxin. They concluded that anatoxin, when prepared with nonfiltrated toxins, containing, therefore, diphtheritic bacteria in suspension, has a higher immunizing power than that of ordinary anatoxin. The action of suspended bacteria in the anatoxin is identical with that of other nonspecific substances which stimulate immunity by means of the production of local reactions.

Takata Test

Professor Dogliotti, in a lecture recently delivered before the members of the Accademia Medico-fisica of Florence, reported his results with the Takata test with the blood serum of more than 200 patients suffering from various diseases, especially liver diseases. The test gives intense positive results in cirrhosis of the liver. In other diseases (nephritis, hepatitis, pneumonia and cachexia) the test gives either negative or partially positive results.

Deaths

Prof. Cesare Biondi, professor of legal and industrial medicine at the University of Siena, recently died at Siena. Dr. Biondi had been a professor at the University of Sardinia and medicolegal adviser of the army during the war. At the time of his death he was a member of the permanent committee for the study of industrial diseases and accidents. He wrote important articles and books on self-inflicted injuries, evaluation of invalidism, and other industrial and social topics.

Professor Livierato, ordinarius at the Genoa University, recently died. He was the founder and provider of the Istituto Genovese di patologia medica dimostrativa propedeutica.

Dr. Guglielmo Romiti, professor emeritus of anatomy of the University of Pisa, is dead. He wrote several books on anatomy. Many professors of anatomy now teaching in Italian universities were his pupils. Romiti's teachings on anatomy have prevailed in Italy for the last half century.

Marriages

GORDON FREDERICK JACKSON, Toronto, Ont., Canada, to Miss Katheryn Phillips of East Orange, N. J., in Lincolndale, N. Y., May 4.

RALPH MILTON DE PASQUALE, Pelham Manor, N. Y., to Miss Lauretta Gertrude McCormick of Rochelle Park in May.

MORTON MORRIS PINCKNEY, Richmond, Va., to Miss Louise Lippitt Sinnickson of Bryn Mawr, Pa., May 16.

JAMES P. PREGNALL JR., Asbury Park, N. J., to Miss Marian Elizabeth Thompson of Allenhurst, May 12.

JOHN CRAFFORD HOLMAN JR., Franklin, Texas, to Miss Margaret McKinzie of New Orleans, June 20.

JOSEPH A. GILMARTIN, Pittsburgh, to Miss Genevieve D. Heyl of Elizabeth City, N. C., April 17.

JOSEPH BERNARD BRAIN, Isabella, Pa., to Miss Mildred Marie Peters of Masontown, June 16.

ABRAHAM I. RAMENOFSKY, La Salle, Ill., to Miss Elizabeth Lantin of Los Angeles, June 7.

LELAND COFFEY BROWN, Stuarts Draft, Va., to Miss Marjorie Mower of Staunton, April 18.

HARRY M. MORGAN, Winlock, Wash., to Miss Ruth Reed of Nehalem, Ore., May 30.

Deaths

Alfred James Ostheimer, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1898; served during the World War; formerly connected with the U. S. Public Health Service and the Veterans' Bureau; at one time medical director of the mental hygiene division of the Public Charities Association of Pennsylvania; aged 61; died, March 23, in the Veterans Administration Facility, Coatesville, of coronary thrombosis.

George Franklin Bauch, Lansing, Mich.; Western Reserve University Medical Department, Cleveland, 1892; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the Michigan State Medical Society; past president of the Ingham County Medical Society; on the staff of the Edward W. Sparrow Hospital; aged 65; died, April 5, of cerebral arteriosclerosis.

Jesse Lee Paine ⊕ Olympia, Wash.; Eclectic Medical College, Cincinnati, 1916; past president and secretary of the Thurston-Mason Counties Medical Society; formerly on the staff of St. Peter's Hospital; aged 48; died, March 18, of an infection of the brain following a scratch on the nose inflicted by a prisoner.

Vincent Alan Farrell ⊕ Mason City, Iowa; Northwestern University Medical School, Chicago, 1901; formerly on the staffs of St. Joseph's Mercy Hospital and the Story Hospital; aged 59; died suddenly, April 6, of embolism following an injury to the hip due to a fall.

Thomas Edward McEvoy, Worcester, Mass.; Yale University School of Medicine, New Haven, 1892; member of the Massachusetts Medical Society; aged 76; for many years on the staff of St. Vincent Hospital, where he died, March 28, of septicemia and diabetes mellitus.

Virgil Harrison Danford ⊕ Wallum Lake, R. I.; Ohio State University College of Medicine, Columbus, 1915; served during the World War; medical superintendent of the State Sanatorium; aged 47; died, April 21, in the University Hospital, Columbus, of coronary occlusion.

Francis George Curtis ⊕ Ashfield, Mass.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1883; for many years chairman of the board of health of Newton and on the staff of the Newton (Mass.) Hospital; aged 78; died, April 7.

Francis Scrimzeous Furman, Shreveport, La.; Tulane University of Louisiana Medical Department, New Orleans, 1891; served during the World War; at one time member of the city board of health; aged 66; died, April 12, in a local sanatorium, of pneumonia.

Fred Lee Bates, Lima, Ohio; Cincinnati College of Medicine and Surgery, 1889; for many years member, and president of the board of education; on the staffs of the Lima Memorial Hospital and St. Rita's Hospital; aged 69; died, April 30, of cardiac decompensation.

Robert Alexander McIlhenny, Conway Springs, Kan.; Rush Medical College, Chicago, 1891; member of the Kansas Medical Society; past president of the Sumner County Medical Society; bank president; aged 69; died, March 3, of cerebral hemorrhage.

Frank Elliot Bateman ⊕ Somerville, Mass.; Harvard University Medical School, Boston, 1894; veteran of the Spanish-American War; for many years city physician; on the courtesy staff of the Somerville Hospital; aged 70; died, April 5, of heart disease.

Joseph Cyrus Bradfield ⊕ Lima, Ohio; Ohio State University College of Medicine, Columbus, 1911; served during the World War; aged 47; on the staffs of the Lima Memorial Hospital and St. Rita's Hospital, where he died, April 14, of pneumonia.

James A. Moore ⊕ Marshall, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; past president of the Harrison County Medical Society; chief surgeon of the Texas and Pacific Railway Employees Hospital; aged 62; died, March 12.

Zeri Huff Fodrea, Westfield, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888; member of the Indiana State Medical Association; past president of the Hamilton County Medical Society; aged 79; died, April 21.

Runyan Lee Butler ⊕ Clovis, N. M.; University of Arkansas School of Medicine, Little Rock, 1928; secretary and past president of the Curry County Medical Society; aged 31; died, April 1, in a hospital at Little Rock, Ark., of pneumonia.

Thomas Craig Detwiler, Lancaster, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1881; formerly on the staff of the Lancaster General Hospital; aged 76; died, April 15, in St. Joseph Hospital, of diabetes mellitus.

Ernest A. de Bordenave, Franklin, Va.; Medical College of Virginia, Richmond, 1899; member of the Medical Society of Virginia; for many years postmaster; aged 61; died, April 6, in the Raiford Hospital, of cerebral hemorrhage.

Ernest Linwood Hayford, Chicago; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; aged 71; died, April 16, in the Washington Boulevard Hospital, of carcinoma of the thyroid.

William Henry Bahl, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; aged 63; died, April 23, in the Illinois Masonic Home, Sullivan, of mitral insufficiency.

Mabel Harvey Falk Bancroft, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1903; served in France during the World War; aged 54; died, April 28, in the Woman's Hospital, of heart disease.

William Harrison Mallory ⊕ Joplin, Mo.; Medico-Chirurgical College of Kansas City, 1905; aged 57; on the staffs of St. John's Hospital and the Freeman Hospital, where he died, March 15, of agranulocytosis.

Robert L. Miller, Waynesboro, Ga.; University of Georgia Medical Department, Augusta, 1891; member of the Medical Association of Georgia; aged 65; died, March 31, of hypertension and nephritis.

Irvin Isadore Davis, New York; University of Oregon Medical School, Portland, 1935; intern at the Mount Sinai Hospital; aged 23; died, April 6, in Portland, Ore., of carcinoma of the pancreas.

Sidney Adair Brevard ⊕ Deeson, Miss.; College of Physicians and Surgeons, Memphis, Tenn., 1907; served during the World War; aged 50; died, April 19, in the Baptist Hospital, Jackson, of uremia.

Alexander Rae Evans, Ardmore, Pa.; Medico-Chirurgical College of Philadelphia, 1905; for many years a member of the Lower Merion Board of Health; aged 69; died, April 20, of cerebral thrombosis.

Mary Taylor Bissell, Brooklyn; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1881; aged 82; died, April 1, of uremia, chronic nephritis and Paget's disease.

William H. Peters, Cincinnati; Miami Medical College, Cincinnati, 1909; for many years city health officer; aged 54; died, March 13, in the Good Samaritan Hospital, of coronary arteriosclerosis.

Lundy Nathan Barnard, Muskogee, Okla.; Memphis (Tenn.) Hospital Medical College, 1911; on the staff of the Veterans Administration Facility; aged 58; died, April 29, of angina pectoris.

Alexander David Berow, Brooklyn; University of the City of New York Medical Department, 1893; aged 66; died, April 22, in the Israel Zion Hospital, of injuries received in an automobile accident.

James L. Henderson, Osceola Mills, Pa.; Medical College of Ohio, Cincinnati, 1882; member of the Medical Society of the State of Pennsylvania; aged 83; died, April 20, of cerebral hemorrhage.

Helen Simonds Childs, Simsbury, Conn.; Boston University School of Medicine, 1890; aged 84; died, April 8, of toxemia following acute obstruction of the common bile duct due to stone.

Adelbert Glidden Bush, Grand Rapids, Mich.; University of Buffalo School of Medicine, 1881; Civil War veteran; aged 87; died, April 12, of cerebral arteriosclerosis and chronic myocarditis.

Frances S. Konrad Filipiak, Cleveland; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1898; aged 60; died, April 22, in the Woman's Hospital.

John W. Bradfield, Austin, Texas; University of Texas School of Medicine, Galveston, 1903; medical superintendent of the Austin State School; aged 58; died, April 23, of coronary occlusion.

J. Edwin Allen, St. Louis; Missouri Medical College, St. Louis, 1896; aged 69; died, April 23, in the Bethesda General Hospital, of carcinoma of the prostate with metastasis to the liver.

Beatrice Victoria Burg, Oakland, Calif.; University of Texas School of Medicine, Galveston, 1922; member of the California Medical Association; aged 43; died, April 4, of heart disease.

Everett Joshua Peek, White Hall, Ill.; Chicago College of Medicine and Surgery, 1907; aged 57; died, March 21, in Houston, Texas, of coronary occlusion and chronic hypertension.

Charles Curtis Page, Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1886; aged 72; died, March 8, of uremia, chronic nephritis and hypertension.

James Braxton McKee, Glade Springs, Va.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; member of the Medical Society of Virginia; aged 76; died, March 17.

Daniel Edward Cripe, Hillisburg, Ind.; American Medical College, Indianapolis, 1895; aged 85; died, April 8, in the Clinton County Hospital, Frankfort, of cerebral hemorrhage.

Nasib Daud Barbari, Niagara Falls, N. Y.; American University of Beirut School of Medicine, 1892; aged 62; died suddenly, April 16, in the Memorial Hospital, of myocarditis.

E. Stella Perrigo, Pipestone, Minn.; Hahnemann Medical College and Hospital, Chicago, 1886; aged 83; died, March 25, at Mound, of hemorrhage due to carcinoma of the uterus.

John Andrew Doerner, Cumberland, Md.; University of Maryland School of Medicine, Baltimore, 1877; aged 79; died, April 7, of bronchopneumonia and cardiac dilatation.

E. H. Wyman, Estill, S. C.; University of Georgia Medical Department, Augusta, 1889; aged 66; died, March 25, in the Columbia (S. C.) Hospital, of coronary thrombosis.

John A. McHugh, Chicago; Harvey Medical College, Chicago, 1901; aged 62; died, March 28, in the Garfield Park Community Hospital, of hypertensive heart disease.

Ransom W. Edden, Janesville, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1891; aged 67; died, April 15, of cerebral hemorrhage and hemiplegia.

David Robert Bussdicker ⊕ Dayton, Ohio; Miami Medical College, Cincinnati, 1908; aged 64; died, April 17, in the Miami Valley Hospital, of cardiorenal vascular disease.

Oliver Sloan Haines, Philadelphia; Hahnemann Medical College of Philadelphia, 1882; professor emeritus of materia medica at his alma mater; aged 75; died, May 1.

Gordon Van Buren Fletcher, Chicago; Meharry Medical College, Nashville, 1930; aged 38; on the staff of the Provident Hospital, where he died, April 11, of nephritis.

George N. Cox, Mount Sterling, Ky.; University of Louisville School of Medicine, 1885; aged 74; died, April 15, in the Mary Chiles Hospital, of intestinal obstruction.

Charles Stockton Stafford, Tampa, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1889; aged 70; died, March 24, of carcinoma of the bladder.

Donald Herman Hesse Till, Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1931; aged 32; died, March 22, in Williamsport, Pa.

H. H. Bainter, Coshocton, Ohio; Baltimore Medical College, 1893; aged 78; died, April 23, in the City Hospital, of pneumonia, following fracture of his hip.

William H. Doak, Martinsville, Ill.; University of Wooster Medical Department, Cleveland, 1874; aged 93; died, April 23, of arteriosclerosis and chronic nephritis.

Edward Payson Cooper, Maplewood, N. J.; University of the City of New York Medical Department, 1871; aged 88; died, April 10, of cerebral hemorrhage.

Gordon Stanton, Hastings, Fla.; George Washington University School of Medicine, Washington, D. C., 1905; aged 66; died, March 31, of chronic myocarditis.

Emma E. Olson Cummings, Milwaukee; Hahnemann Medical College and Hospital, Chicago, 1899; aged 66; was found dead, April 11, of chronic myocarditis.

James McColgan, Grass Lake, Mich.; Jefferson Medical College of Philadelphia, 1889; aged 72; died, March 30, of diabetes mellitus and arteriosclerosis.

Roy Ray Lang, Denver; St. Louis College of Physicians and Surgeons, 1922; member of the Colorado State Medical Society; aged 39; died, March 29.

William H. Pickering, Collins, Miss.; University of Alabama Medical Department, University, 1899; aged 74; died in March of carcinoma of the face.

John W. Dixon, Franklin, Ind.; Medical College of Evansville, Ind., 1881; formerly mayor of Franklin; aged 91; died, April 22, of arteriosclerosis.

James D. Watts, Dumas, Ark.; Chattanooga (Tenn.) Medical College, 1904; member of the Arkansas Medical Society; aged 60; died, March 29.

Clark E. Farabee, Indianapolis; Medical College of Indiana, Indianapolis, 1880; formerly health officer of Hendricks County; aged 83; died, April 14.

William Edward Black, Columbia, Tenn.; University of Nashville Medical Department, 1906; aged 54; died, April 17, of cerebral hemorrhage.

Louis Neumann, Oxford, N. J.; Bellevue Hospital Medical College, New York, 1898; aged 66; died, March 23, of cardiovascular renal disease.

Mattylee Curl Barnett ⊕ St. Louis; Woman's Medical College, Kansas City, 1902; aged 57; was found dead, April 19, of chronic myocarditis.

George C. Barnett, Wichita, Kan.; St. Louis College of Physicians and Surgeons, 1892; aged 77; died, April 23, of bronchopneumonia.

William J. Bryson, Hays, Pa.; Medico-Chirurgical College of Philadelphia, 1903; aged 75; died, April 5, of hypostatic pneumonia.

Homer C. Brigham, Montpelier, Vt.; New York Homeopathic Medical College, 1872; aged 84; died, April 29, of chronic myocarditis.

Frank Jewell Nooe, Harrodsburg, Ky.; Hospital College of Medicine, Louisville, 1905; aged 60; died, March 24, of pneumonia.

Carl R. Krause, Lakewood, Ohio; Western Reserve University Medical Department, Cleveland, 1884; aged 73; died in March.

Archibald McDermid, Severn Bridge, Ont., Canada; Trinity Medical College, Toronto, 1898; aged 76; died, March 17.

Rosario Lessard, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1914; aged 45; died, March 9.

George W. Deem, Columbus, Ohio; Eclectic Medical Institute, Cincinnati, 1890; aged 75; died, April 18, of angina pectoris.

Dogan Pemberton, Houston, Texas; Meharry Medical College, Nashville, Tenn., 1927; aged 33; was shot and killed, March 2.

Robert Edward Lee Morton, Long Beach, Calif.; Marion-Sims College of Medicine, St. Louis, 1897; aged 66; died, March 7.

Harry James Lynch ⊕ Brooklyn; University and Bellevue Hospital Medical College, 1910; aged 49; died, March 28.

Michael Henry Egan, Chicago; Minneapolis College of Physicians and Surgeons, 1891; aged 70; died in April.

Charles J. Bain, Camden, Tenn. (licensed in Tennessee in 1909); aged 58; died in March.

Correspondence

BLOOD IN ARTHRITIS

To the Editor:—In the interesting report on the "Blood in Arthritis" by Dr. Hartung and his co-workers (THE JOURNAL, April 25, p. 1448) there seems to be an inconsistency which I should like to have explained. On page 1449 the authors state that "the elevated nonfilament count in slightly over half of the patients with osteo-arthritis is worthy of comment. These abnormal conditions in osteo-arthritis may be due to associated rheumatoid disease or focal infection." In the summary of their paper on page 1452 the writers assert that "the finding of a normal nonfilament percentage in many cases of osteo-arthritis certainly suggests that infection plays no rôle in this condition." Clearly the writers are impaled on the horns of a dilemma. They must either admit that the presence of an elevated nonfilament count is not an indication of infection, which is contrary to their opinion as stated in THE JOURNAL, March 4, 1933, or they must admit that in at least half of their cases of osteo-arthritis some infectious factor plays an active rôle. If evidence such as Dr. Hartung and his co-workers have cited points to a possible infectious factor in a fairly high percentage of cases of osteo-arthritis, it seems wise to follow that lead. It appears particularly important to me when it is correlated with the clinical fact that in a group of osteo-arthritis cases analyzed recently, approximately 40 per cent of the patients had demonstrable foci of infection. It would be interesting to know whether Dr. Hartung has made any correlation between the blood picture and the presence of focal infection in the cases of osteo-arthritis which he has studied.

There seems to be a general reluctance, today, to admit that infection may play a part in the etiology of any case of osteo-arthritis. Indeed, there are some who state dogmatically that rheumatoid arthritis is an infectious disease and that osteo-arthritis is a degenerative process and therefore noninfectious. These authors seem to forget that many degenerative pathologic conditions are infectious in origin. While it may be justifiable to attempt to make a differential diagnosis between rheumatoid arthritis and osteo-arthritis, clinically, surely we are not as yet prepared in the present stage of our knowledge to make any sharp etiologic distinctions between these two types.

BENJAMIN H. ARCHER, M.D., New York.

NOTE.—This letter was referred to Dr. Hartung, who sends the following reply:

To the Editor:—It has been pointed out by investigators that a rise in the immature leukocytes is the result of stimulation of the blood-forming organs by the absorbed products of infection. We found the nonfilament count elevated in 96 per cent of our patients with rheumatoid arthritis, in many of whom no focus of infection was demonstrable other than active joint involvement. In our group of patients with osteo-arthritis, presenting clinical symptoms in every case, 47 per cent showed a normal blood count. In those osteo-arthritic patients with an elevated nonfilament count a number were found to have mixed arthritis, while the rest of the group presented a variety of focal infections. Focal sepsis alone gives an elevated nonfilament count (Pepper, O. H. P., and Farley, D. L.: Practical Hematological Diagnosis, Philadelphia, W. B. Saunders Company, 1934). Our results suggest, then, that in osteo-arthritis an increased nonfilament count is indicative of an added factor to the intrinsic arthritic process. The doctor's figures on the incidence of focal infection in osteo-arthritis approximate our own observations. It must be remembered that a similar frequency of focal infection has been reported in routine examinations of presumably healthy adults (Sydenstricker, Edgar, and Britten, R. H.: *Am. J. Hyg.* **11**:73 [Jan.] 1930). To avoid the fallacy of nonsequitur it must be realized, therefore, that the mere presence of an infectious focus does not necessarily endow it with an etiologic relationship to the long-standing osteo-arthritis it accompanies.

Our correspondent's concern for the classification of osteo-arthritis as an essentially degenerative disease is not supported by the trend of published work and thought on the subject. Further evidence must be awaited than now exists before the complicating factor of focal infection in a part of the disease group can be accepted as the etiologic agent in the disease as a whole.

EDWARD F. HARTUNG, M.D.
OTTO STEINBROCKER, M.D.
New York.

COMMITTEE ON CONTRACEPTIVE PRACTICES

To the Editor:—The report of the American Medical Association's Committee on Contraceptive Practices contains a quotation from a book written by Mr. Leon F. Whitney and myself. This quotation gives the impression that we do not believe in birth control. This is directly contrary to the facts. We certainly believe that birth control has brought with it great dangers. As every one recognizes, it has reduced the birth rate among the more intelligent portions of the community to a dangerous degree. The remedy, however, does not lie in a futile attempt to prevent the restriction of births. Contraception is here in full force and is bound to stay.

The case is exactly like that of the mechanization of industry. It has, indeed, brought great dangers, but it is useless to talk of getting rid of it. If the birth rate of a century or more ago prevailed, together with the modern death rate, the children who are now in school would see in this country a population much greater than that of China. That would mean almost immeasurable poverty, misery, disease and war.

Because of this both Mr. Whitney and myself believe that more birth control rather than less is the remedy for the present undesirable situation. What is needed is more birth control among the less intelligent, less efficient and more self-indulgent parts of our population; this presumably will go far toward raising the birth rate among the more intelligent, efficient and self-controlled portions. There is a small but growing body of evidence that in groups in which birth control is almost universal the differential in the birth rate is in the right direction. That is, the homes where children are well trained and presumably receive a good biologic inheritance contain larger families than do homes of the opposite type. This is true not only of limited groups such as college graduates but of whole cities such as Stockholm. The cure for the evils of partial birth control, such as we now have in America, appears to be complete birth control among all classes.

There are other points in which the report of the American Medical Association's committee shows lack of care. For example, there is a direct contradiction which suggests an unsatisfactory compromise between two opposed factions. We read, for example, that when a physician for "other than medical reasons considers it improper to . . . aid his patient to practice contraception" he "should not be criticized," although he lets these other reasons guide his actions. This, be it noted, is said to be the case "even when from a medical standpoint pregnancy is contraindicated." A later sentence says: "When a medical reason for avoiding pregnancy exists . . . it is the duty of the attending physician, *regardless of his personal beliefs* [italics mine], to inform the patient of her physical condition and the hazard of pregnancy." Such an attempt to sit on both sides of the fence is not worthy of the medical profession. I do not believe that either this attitude or the unduly conservative way in which the vital task of perfecting the

methods of contraception has been tabled by the American Medical Association represents the real opinion of American physicians.

The chief trouble with the report is that it treats contraception as if it were a purely medical matter. This is no more true than that sanitation is purely an engineering problem. The technical skill, to be sure, must be furnished in the one case by physicians and in the other by engineers. But both contraception and sanitation are great social problems and concern the whole people. The social aim of birth control is that plenty of births should take place in the right kind of families and few in those in which the children are likely to be poorly trained as well as poorly endowed by nature. The American Medical Association has ignored this aspect of birth control and has rejected the great task of teaching proper contraceptive methods to every level of society. By failing to recognize this the American Medical Association has done a great injustice to itself, to its members and to the public.

ELLSWORTH HUNTINGTON, New Haven, Conn.
President, American Eugenics Society.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CURE OF MALARIA

To the Editor:—How can one tell whether a relapsed tertian malaria case, originally developed in another country, is cured, when the parasites do not show in the blood any more? Is quinine contraindicated in presence of blood in the urine? Please omit name.

M.D., New York.

ANSWER.—If repeated examinations of the blood by means of the thick film method are negative for the parasites, the chances are altogether in favor of the infection having been cured. The cultivation of the malaria plasmodia after the method of Bass and Johns may be used to determine the question of cure. This method has been in use in the Calcutta School of Tropical Medicine for some years, with the result that in some cases of malaria in which the blood is repeatedly negative on examination microscopically a positive result is obtained by the culture method.

With regard to the use of quinine in the presence of blood in the urine, the drug should be used with great caution. If the case is one of hemoglobinuric fever there is still some question as to whether quinine should be administered, but it is believed that the trend of opinion is in favor of the administration of the drug, owing to the serious character of the condition. However, it would probably be safer to use plasmochin or atabrine in such cases.

PASSIVE TRANSFER METHOD IN ALLERGY

To the Editor:—In an article on allergy in a recent issue of the *Cleveland Clinic Quarterly*, a writer referred to a passive transfer method of testing for allergy. Can you give me further information as to the indications, technic and results of this method? Please omit name.

M.D., New York.

ANSWER.—The phenomenon of passively sensitizing a normal skin with the serum of an allergic patient was described in 1921 by Prausnitz and Küstner. Elaborating on this work, Coca and Grove demonstrated that the sensitizing properties are present in the blood serum when the allergic individual exhibits a positive skin reaction to an antigen, that many antibodies or reagins, as they are frequently termed, may exist in the same serum, and that each reagin will react specifically only with its related antigen. The serum is obtained from the sensitive individual under sterile precautions. In the absence of a positive Wassermann reaction it may be used to sensitize the skin of a normal individual. It may be used undiluted or diluted with sterile physiologic solution of sodium chloride to 1:10 or more, depending on its reagin content. One-tenth cc. is injected intracutaneously in a number of sites at least 2 inches apart, the forearm, back or thigh of the normal individual being used. These sites are marked with indelible ink or mercurochrome. After twenty-four hours each of these places may be tested with a suspected antigen by either the scratch or the intradermal method. A modification of this method of testing the sensitized site was described by M. Walzer, who found that on the ingestion of a food to which the patient is sensitized, preferably on an empty stomach, a reaction will occur in the passively sensitized site after about twenty minutes. With this method of ingestion, however, all sensitized sites will react if the antigen is a cause of the allergy. The sites may be retested after twenty-four hours, a different antigen being used for each place.

It may be noted that this method of testing by passive transfer is much more complicated and requires greater experience than the method of testing the patient directly. Its clinical usefulness is limited to patients with extensive eczema in whom the skin is unfavorable for tests, to patients with marked dermographism, and possibly to infants on whom tests cannot be made without too great a struggle. It does not replace but is merely supplementary to the ordinary methods of allergic examination.

STAMMERING

To the Editor:—In the Dec. 14, 1935, issue of THE JOURNAL in Queries and Minor Notes there was a question on stammering. In the reply it was stated that "Cleveland shows the best school statistics, as it has practically eliminated adult stammering." Will you kindly let me know where these statistics have been obtained and where I can write to learn the method of treatment used by the Cleveland schools?

I. W. KARLIN, M.D., Brooklyn.

ANSWER.—Statistics of speech correction in the Cleveland schools may be obtained by writing to the speech supervisor of the Cleveland schools. Statistics have been kept since the method was installed in 1918. These statistics were published in a 1930 report of the meeting of the American Society for the Study of Disorders of Speech, under the chairmanship of Dr. Elmer L. Kenyon of Chicago. In the same report are statistics of the Omaha schools, which use the same method; but Cleveland has had the method over a longer period of years.

SENSITIVITIES IN RUBBER MANUFACTURING EMPLOYEES

To the Editor:—Trouble, we do not know just from what, is occurring in the manufacture of rubber goods. We make rubber shoes the same as any other rubber manufacturer. Employees get a rash. What I am trying to do is find out if possible whether other companies are having similar trouble, the etiology and the treatment. We buy the raw rubber and go through the process until it is a complete shoe, but where we have our trouble is in the making of rubbers, galoshes and rubber boots.

M.D., Illinois.

ANSWER.—Most companies that manufacture rubber goods experience some difficulty on account of skin diseases. In some instances the skin diseases are encountered along with systemic diseases such as from benzene (or its homologues) or from carbon tetrachloride or trichloroethylene. More often the dermatitis is the sole evidence of a harmful action of the chemicals utilized. At present the chief offending agents are the rubber accelerators, although on occasion rubber itself has been held responsible. Among other accelerators or antioxidizers now or lately in use, the following have been found to be skin irritants: di-ortho-tolylguanidine, diphenyltolylguanidine, paraphenylenediamine, hexamethylenetetramine (methenamine), thiocarbanilid, ethylideaniline, formaldehyde-aniline, methylenedianiline, anhydroformaldehyde-aniline and anhydroformaldehyde-paratoluidine (Hamilton). Other substances that should be the recipient of concern are dichloroethylene, antimony sulfides, sulfur chloride, carbon bisulfide, naphtha, soapstone, boot varnishes and divers diamines. So rapidly are developments made in the rubber industry with respect to accelerators that always the rubber chemist is ahead of the toxicologist. It is believable that agents newer than those listed may be in some use.

It is suggested that patch tests be carried out on various workers, using as test materials rubber without any accelerator, rubber containing the individual accelerators, rubber before and after vulcanizing, and so on. The cause is likely to be found without difficulty in the accelerators—one or more. If the patch tests with such materials are consistently negative, tests should be extended to various solvents, varnishes, coloring agents and fillers. The cause having been found, the treatment is simple—eliminate the irritant. Nonirritating or less irritating accelerators usually are available. So soon as the causative agent is removed, the usual accelerator dermatitis speedily clears up with or without treatment.

The patch test mentioned may be carried out in various ways. The simplest is to apply small squares of the test material directly to the extensor surface of the forearm or

thigh; cover over gauze and a layer of dental damming or cellophane held in place by adhesive plaster. The contact should remain not less than twenty-four hours in the absence of troublesome irritation. Seventy-two or ninety-six hours sometimes is preferable for substances of low irritating properties.

NO MUCUS-FORMING FOODS

To the Editor:—I am so frequently asked by patients about foods that cause mucus that I am referring the question to you, as I can find no scientific authority that answers the question. "Self-styled food experts" tell them that milk, cheese and eggs all form mucus and should be eaten very sparingly and never if they have a cold or any other condition accompanied by mucus, such as sinus disease or mucous colitis. My teaching has always been that there is no such proof of this contention, except possibly in cases of food allergy in which any food eaten that the patient is sensitive to might cause a mucous colitis.

M.D., California.

ANSWER.—There seems to be no scientific authority for the assertion that any food forms mucus. Normally there is a thin coating of mucus over the gastric mucous membrane, and careful studies of the various foods in the normal human stomach fail to reveal any increased mucus production on the part of the mucous membrane with practically all varieties of food. In most instances increased mucus is due to a condition of the mucosa rather than to the type of food that is introduced. Increased production of mucus therefore suggests irritability or inflammation of the mucous membrane whether it would be due to gastritis, enteritis or colitis. When such is the case the entrance of any irritating food may be followed by an increased production of mucus. There is absolutely no evidence that this effect is due to milk, cheese or eggs. On the contrary, they usually form part of the bland diet which is most acceptable to these patients. Intragastric studies on milk, cheese and eggs in healthy subjects fail to show any increased production of mucus. In fact, failure to handle these foods properly may result in increased intestinal putrefaction, with the appearance of mucus in the bowel. This has been pointed out particularly regarding the influence of egg white in certain forms of intestinal putrefaction. Chronic inflammatory conditions of the mucosa frequently follow infections of the upper respiratory tract and are usually accompanied by an increase of mucus regardless of the type of food ingested. Furthermore, it is now generally known that much of this postnasal material as well as bronchial secretion may actually be swallowed and may accumulate in the stomach.

The correspondent is entirely right in assuming that there is no scientific proof of this contention and it is generally acknowledged that when food allergy exists the specific food in question may cause an allergic response in the mucosa in any part of the digestive tract.

"DENICOTINIZED" CIGARS AND CIGARETS

To the Editor:—I meet patients who have been advised by physicians or friends to smoke so-called denicotinized cigarets or cigars. They get some comfort from the belief that the nicotine has been removed but do they actually receive any benefit? Is the nicotine extracted? Are not carbon monoxide and the essential oils of tobacco even more harmful than nicotine? Does it make any difference whether the smoke is inhaled or not? Please omit name.

M.D., Massachusetts.

ANSWER.—Benefit from the use of so-called denicotinized cigarets or cigars, instead of the ordinary brands, depends on the relative amount of tobacco so consumed. The various brands of so-called denicotinized tobaccos so far examined have been found to contain from 0.5 to 1 per cent of nicotine by weight, as compared with an average of 0.8 per cent for West Indian cigarets, 1.5 per cent for Oriental brands, 2 per cent for the common blends, which constitute the bulk of popular consumption, and 2.5 per cent for the straight domestic brands. It appears that the special processing to which such tobaccos have been subjected removes a considerable part of the nicotine originally present but that they are generally composed of high nicotine containing tobaccos to begin with, so that the residual nicotine present may still be much higher than that of certain brands of cigarets not so treated.

The amount of nicotine actually absorbed depends not only on the nicotine content of the tobacco used but also on the amount of such tobacco consumed and the manner in which it is smoked. If the smoker relies on the advertised claims and increases either the number of cigarets smoked, the length of cigaret consumed or the size of cigaret or cigar used, he may suffer from an actual increase in the amount of nicotine absorbed. Inhaling the smoke also appreciably increases the amount of absorption of smoke constituents. If the higher cost of the specially treated cigarets induces the smoker to economize in their use, he may indirectly benefit from the lessening in the actual amount of tobacco used.

Nicotine itself is held responsible for the production of extrasystoles and other cardiac arrhythmias, the development of "tobacco amblyopia" and the aggravation of thrombo-angiitis obliterans or other circulatory disturbances. Other constituents of the tobacco smoke must be responsible for the local irritation of the mucous membranes of the nasopharynx, the conjunctiva and the larynx, leukoplakias of the buccal mucosa and cancers of the lower lip, as well as for the allergic manifestations that have been described. The carbon monoxide content of cigaret smoke is usually too low to produce clinical symptoms, although occasionally it may play a part in the production of headaches.

References:

Schrumpf-Pierron, P.: Tobacco and Physical Efficiency, New York, Paul B. Hoeber, Inc., 1927.

Bogen, Emil: The Composition of Cigarets and Cigaret Smoke, THE JOURNAL, Oct. 12, 1929, p. 1110.

INHERITANCE OF HAND AND FOOT ANOMALIES

To the Editor:—A friend has one extra toe, being the great toe on each foot; the first four toes, including the extra one, are webbed, but otherwise he is apparently normal. One brother, one sister and his mother have the same characteristic plus a peculiar articulation of the thumbs in which the joint between the proximal and the middle phalanx points convexly toward the index finger when the thumb is abducted. He has another brother with five toes with a webbing of the third and fourth toes on both feet and the webbing of the middle and ring fingers of the right hand. He also has one brother and two sisters normal so far as these characteristics are concerned. His father is also normal in this respect. Neither he nor any of his brothers or sisters is married, so that there have been no children in the third generation. He does not know concerning his mother's parents and her brothers and sisters living as to these characteristics, but he thinks they are normal. 1. What is the name given to this peculiarity? 2. If he marries, a normal woman, what will be the likelihood of this characteristic appearing in his children and in his grandchildren? 3. If there is likelihood of this appearing in his children, what proportion of each sex will be likely to show this characteristic? 4. If his sisters and brothers each marry to a normal mate, what would be the answer to questions 2 and 3 in each case. Please omit name.

M.D., Missouri.

ANSWER.—1. From the description it appears that the condition is one involving a doubling or twinning of the big toe associated with webbing of the other toes.

2. All, or nearly all, hand and foot anomalies are inherited as mendelian dominants. Since no intermarriage of close relatives has taken place, all individuals showing the anomalies are heterozygous (having both a dominant and a recessive gene). A heterozygous individual mating with a pure recessive (in this case a normal person) would be expected to produce affected and normal children in equal numbers.

3. Since these hand and foot characters are not sex linked, the two sexes would be equally affected.

4. The normal brothers or sisters of an affected person do not carry the gene for the anomaly and therefore would not pass it on to their children.

HAIR DYES

To the Editor:—Is there any perfectly harmless method of gradually restoring a brown color to prematurely gray hair in a young man—a method that can be used at home? Please omit name.

M.D., Nebraska.

ANSWER.—No, there is no perfectly harmless hair dye. The least harmful according to Alfred Perutz (*Handbuch der Haut- u. Geschlechtskr.*, 1934) are those made of combinations of henna, the powdered leaves of Lawsonia inermis, and reng, the powdered leaves of the indigo plant, indigo fera-argenta. Varying amounts in the mixtures of the two dyes give colors varying from blond to black.

More dangerous is silver, which, carelessly used, has been known to produce generalized argyria. Dyes containing lead have been popular in the past and are still advertised as "gradually restoring the natural color." Lead does act gradually, combining with the sulfur in the hair, but there is danger of resulting plumbism. Silver and lead dyes are the only ones that will give anything like a satisfactory color when used at home. Of course there is much more danger of poisoning from them under these circumstances than if used by an expert. If the patient insists on dyeing his hair, let him go to the best hairdresser available to get an expert job, braving the danger of resultant dermatitis, which is, after all, not a frequent occurrence, or hair dyes would not long survive. The other alternative, much the wiser, is to accept gracefully the distinction nature is bestowing on one.

SYPHILITIC AORTITIS

To the Editor:—A man, aged 42, 5 feet 8 inches (173 cm.) tall, 170 pounds (77 Kg.) in weight, has had anginoid pains (with mostly minor attacks) and with a distribution to both jaws, radiating to the back and also substernally, increasing in frequency in the last six months. A recent Wassermann and Kahn test has shown a 4 plus reaction. On percussion the ascending aorta seems to be much dilated. My prognosis is syphilitic aortitis. A recent electrocardiogram does not reveal any myocardial involvement. The heart sounds seem to be normal and the heart does not appear to be enlarged. The blood pressure is 114 systolic, 75-70 diastolic. Considering that this is a vascular type of syphilis, am I justified in withholding arsenicals? I am giving the patient a saturated potassium iodide solution in ascending doses, also 2 cc. of a 2.5 per cent bismuth subtartrate solution intramuscularly twice weekly. Is a soluble bismuth preparation reliable? When in your opinion should treatment with arsenicals start? What is the prognosis of such cases? Would you advise more radical treatment than mentioned? Kindly omit name.

M.D., New Jersey.

ANSWER.—The clinical diagnosis of syphilitic aortitis with possibly a beginning aneurysm is justified in this case. Cardiovascular syphilis in general should be treated more cautiously and less intensively than other forms of syphilis. There are at present two schools of thought relative to the treatment of cardiovascular syphilis, the one favoring the milder and slower acting remedies such as mercury, bismuth and the iodides, the other advocating more energetic treatment with arsenicals plus mercury and iodides. Bismuth, on account of its low toxicity, is a particularly desirable drug to use and can often be employed with excellent results to the exclusion of the arsenicals. A soluble bismuth preparation has no advantages over an insoluble one, such as the salicylate. In view of the different opinions expressed by various authorities, a conservative opinion would favor intermittent treatment with bismuth compounds and iodides over a long period of time before resorting to the arsenicals. The latter if used at all should be given cautiously and in small doses. The prognosis in cardiovascular syphilis must be guarded, as the outlook in general is grave. The value of rest, the avoidance of physical and nervous strain, and general measures should be emphasized in the management of these cases.

WASSERMANN FAST SYPHILIS

To the Editor:—I have under my care a married woman, aged 23, who was recently delivered of a male infant. On routine study fourteen months ago, it was discovered that her blood was positive for syphilis. She was then started on intensive antisyphilitic treatment which has consisted in the main of alternating courses of a bismuth compound and neoarsphenamine, each course consisting of ten weekly injections. The dose of the neoarsphenamine was from 0.45 to 0.6 Gm., that of the bismuth compound 1 cc. Serologic tests done from time to time have remained consistently positive. The last reading was as follows: Wassermann, 4 plus; Kolmer, strongly positive; modified Hinton, positive; Kahn, 3 plus. While the period of treatment is slightly more than a year, should not one expect some changes in these tests? Incidentally, the patient is a responsible person and denies any knowledge of the infection. Is it not quite likely that I may be dealing with syphilis of congenital origin which, I have been taught, is much more refractory to treatment than the acquired form. Would a spinal fluid Wassermann test be indicated at this time?

M.D., Massachusetts.

ANSWER.—The serologic response of syphilis even when intensively treated with adequate courses of bismuth preparations and neoarsphenamine shows considerable variation. Before the case is classified as Wassermann fast at least another year of treatment should be administered. Unless there should be found some characteristic sign the disorder should be considered as acquired rather than congenital. A spinal fluid Wassermann test should be made at this time to rule out the presence of asymptomatic neurosyphilis.

UMBILICAL HERNIA

To the Editor:—What would you suggest for an umbilicus that protrudes about half an inch in an infant 2 months old?

SAMUEL C. KARLAN, M.D., Dannemora, N. Y.

ANSWER.—A protrusion of the umbilicus may result from (1) the persistence of remnants of the vitello-intestinal duct and urachus or (2) the presence of a sac of peritoneum in the umbilical ring where the fetal vessels have passed; that is, a hernia. The question as stated does not give sufficient information for identification. It is therefore difficult to tell which treatment to recommend.

In general it may be said that, if the protrusion is solid and the result of persistence of the rudimentary structures, treatment consists in excision. The umbilicus with its protrusion or tumor, as the case may be, is excised by an elliptic incision. This should be done carefully, as there may be a communication with a rudimentary Meckel's diverticulum.

An umbilical hernia, on the other hand, in a child so young frequently gets well without operation. The essence of treatment is to bring the recti together. Broad strips of adhesive tape are applied from one side of the abdomen to the other in such a way that the lateral tension is reduced. A felt pad may be placed over but not into the hernia. The strapping may be renewed as often as necessary, approximately once every week or two. This treatment hardly ever fails up to the age of 3. In a child over that age, operative treatment is usually necessary.

MENOPAUSAL DISTURBANCES

To the Editor:—For the last nineteen years, following a panhysterectomy, a friend has had symptoms of persistent menopause. These symptoms consist of nervousness, hot flashes and headaches. At present she is 42 years of age. She has taken ovarian extract without relief. Is there any other preparation that could be of aid? Please omit name and town.

M.D., Kentucky.

ANSWER.—The prolonged period of distressing menopausal symptoms may be attributed to the fact that the patient had the panhysterectomy at the early age of 23. However, there must undoubtedly be a strong psychic factor in this patient. Many women can be relieved of their menopausal disturbances by the repeated hypodermic administration of estrogenic substance. The two preparations most commonly used in this country are amniotin (E. R. Squibb & Sons) and Theelin (Parke, Davis & Co.). It is well to give about 500 rat units hypodermically every second day. In addition, the patient should take either one amniotin capsule or one theelol capsule by mouth every day. If this dosage does not give relief, more frequent injections or larger amounts will have to be given. As soon as the patient feels distinctly better, the dosage may gradually be diminished. This treatment will have to be carried out over a long period. It is advisable also to prescribe a mild sedative, such as the bromides, or small doses of one of the barbiturates.

MEASURING CARDIAC LOAD

To the Editor:—Please tell me how to figure heart load and mean pressure. I know that systolic 120, diastolic 80, pulse pressure 40, mitral efficiency three times 40 = 120. Keeping within the range of the systolic is normal. I know that systolic 160, diastolic 100, pulse pressure 60, mitral efficiency three times 60 = 180, shows the myocardium under undue strain. Now how do I find the heart load, which I believe normally is around 50, and how do I find mean pressure, which is around 72?

HENRY V. BROESER, M.D., Hoboken, N.J.

ANSWER.—From the way the question is stated, it is difficult to understand what the author has in mind. The cardiac load cannot be calculated from such simple measurements as blood pressure. The most important factors that maintain blood pressure are the force and rate of the heart, the volume and viscosity of the blood, the elasticity of the blood vessels, and the peripheral resistance. It is obvious that with all the complex factors influencing the blood pressure one can hardly compute the heart load from blood pressure measurements. In general, physiologic processes are very complex and their measurement, such as cardiac load, does not reduce itself to simple mathematical formulas, as implied in the question.

DIPHTHERIA AND SCHICK TESTS

To the Editor:—1. Is it advisable to do a Schick test on all infants before giving diphtheria toxoid? Does the same apply to older children? 2. If toxoid has been given and a negative Schick test obtained, when should the Schick test be repeated? 3. In the event a case of diphtheria occurs in a family, should other children in the family previously found Schick negative be given the preventive antitoxin? 4. If a child has been given toxoid and then is exposed to diphtheria before the end of from six to eight weeks and no Schick test has been done, should antitoxin be given? 5. In children who have never had toxoid but are found Schick negative, when should the Schick test be repeated? Please omit name.

M.D., Tennessee.

ANSWER.—1. It is not necessary to do a Schick test on infants before giving diphtheria toxoid. It is advisable to do a Schick test on older children before immunization.

2. It is desirable to repeat the Schick test one year after immunization.

3. If a case of diphtheria occurs in a family, preventive antitoxin should not be given to children who previously showed a negative Schick test.

4. It is not advisable to give preventive antitoxin to a child exposed to diphtheria from six to eight weeks after administration of diphtheria toxoid. It is best to do a Schick test first.

5. It is not necessary to repeat the Schick test in children who are spontaneously negative.

NONSPECIFIC PROTEIN THERAPY

To the Editor:—What foreign proteins, besides milk and typhoid vaccine, would you suggest for supplementary nonspecific protein therapy in my practice? What would you suggest as supplemental measures in rheumatism and acute and chronic arthritis, and would streptococcus bacteriophage be satisfactory in those conditions? I have read Cecil's recent article but he mentions only milk, typhoid vaccine and diphtheria. Is the milk put up in vials by some of the pharmaceutical laboratories potent enough or is freshly boiled milk the best?

M.D., Appleton, Wis.

ANSWER.—One of the simplest and cheapest of foreign proteins is sterile normal horse serum, given in doses of from 2 to 5 cc. intramuscularly. In rheumatism and arthritis the foreign protein that has been used most extensively is some form of Streptococcus haemolyticus vaccine administered in small doses either intramuscularly or intravenously. There is some difference of opinion as to the value of Streptococcus haemolyticus vaccine in the treatment of rheumatic conditions, but it still has many strong advocates. The value of streptococcus bacteriophage would probably be proportional to the amount of reaction set up in the patient by the injection. On the whole, streptococcus bacteriophages have been disappointing in the treatment of streptococcic infections. Freshly boiled skimmed milk is usually preferable to the refined products put up by pharmaceutical laboratories, as the former is more likely to excite a febrile reaction.

DIFFERENTIAL DIAGNOSIS OF CATARACT DUE TO DINITROPHENOL

To the Editor:—How can one differentiate between senile cataract from one due to dinitrophenol poisoning in a person 55 years of age? Please do not publish name.

M.D., New York.

ANSWER.—A cataract due to dinitrophenol is always bilateral, although the condition in one eye may be more advanced than in the other. It appears from six to twenty months after the ingestion of the drug. The onset is rather slow, requiring from three to six months before vision is seriously interfered with; but afterward the progress is very rapid. The opacity is rather uniform and lies in the anterior and posterior cortex, leaving the nucleus fairly clear until the terminal stage. There is apt to be more swelling of the lens than in the senile form. Immediately underneath the anterior as well as the posterior capsule there is most frequently a narrow zone of clear cortex that is practically the last part of the lens to become opaque. In many respects a cataract due to dinitrophenol resembles closely a true diabetic cataract.

TREATMENT OF FILARIASIS

To the Editor:—I have a patient suffering from filariasis. The filariae have been seen in the blood. The only symptoms she complains of are weakness and milky white urine, due to chyle. The patient has had many kinds of treatment during the last three or four years, but they do not seem to have improved the disease at all. Sometimes the urine is normal for a period of months, but at other times it is just the same as before. Kindly send me information concerning the latest accepted treatment of such cases.

GEORGE R. HOPKINS, M.D., Curaçao, Netherlands, West Indies.

ANSWER.—At present, experimental work suggests that the best hope of improvement in cases of filariasis and especially chyluria is to be derived by high voltage roentgen therapy. The technic is described by Golden, Ross, and O'Connor, F. W.: The Roentgen Treatment of Filariasis, *Tr. Roy. Soc. Trop. Med. & Hyg.* **27**:385 (Jan. 31) 1934.

URTICARIA AFTER SAUER VACCINE

To the Editor:—One week after the administration of 2 cc. of Sauer pertussis vaccine (first dose), a child experienced a severe urticaria. How should I proceed in this case with regard to further doses? How serious a hypersensitivity may I have grounds to fear? Please omit name.

M.D., New York.

ANSWER.—It seems quite unlikely that authorized pertussis bacillus vaccine, injected into a nonimmune child, would precipitate urticaria a week later.

Both laboratories authorized to make this vaccine for immunization grow the Bordet bacillus on Bordet medium enriched with human blood. Vaccine, so prepared, containing no trace of animal protein, should not sensitize or elicit anaphylactic reactions.

If the correspondent is certain that the child has not had whooping cough, and if one of the two authorized commercial vaccines is used, the bilateral injections should be continued at weekly intervals until a total of 8 cc. has been injected. If the child is more than 3 years of age, a total dosage of 10 cc. may be given. Immunization ought to be complete within several months after the last injection.

EFFECTS OF LOW HYDROCHLORIC ACID

To the Editor:—In men past 50, what is the incidence of low hydrochloric acid? In alcoholic addicts is the tendency toward high or low hydrochloric acid? Please use initial only.

M.D., Alabama.

ANSWER.—In men past 50 the incidence of low or absent hydrochloric acid is at least 33 per cent, according to most authors. Seidelin and also Meulengracht found achylia to be present in 40 per cent of healthy elderly persons. Liepschütz observed an achylia in 33 per cent of a group of healthy individuals between the ages of 50 and 75. On the other hand, Schütz obtained an absence of free hydrochloric acid in only 15 per cent of elderly individuals he examined.

In alcoholic addicts the tendency is toward low hydrochloric acid, although high and normal values are frequent. In cases of long-standing alcoholism particularly the degree of acidity is likely to be low, whereas in the early cases hyperacidity is not rare.

PREPARATIONS USED INTRAVENOUSLY

To the Editor:—I have an Epitome of the U. S. Pharmacopeia and National Formulary, also a 1935 copy of New and Nonofficial Remedies, and have subscribed for the 1936 edition, but these books do not solve my prescribing problems. Little is mentioned in the Epitome about intravenous or intramuscular or even subcutaneous medication, yet drug houses are putting out ampules and such for this medication. Sodium chloride intravenously is used as normal salt solution; so is sodium iodide, sodium salicylate, colchicine and various other drugs, as examples of what I mean. Is it possible that you have a book which simply tells of the U. S. P. drugs and N. F. drugs that are used intravenously, intramuscularly or subcutaneously? If so, please send me the names of the book or books so that I can solve the problem.

M.D., Ohio.

ANSWER.—Dutton's book on "Intravenous Therapy" (Philadelphia, F. A. Davis Company, 1925) is the most extensive book on the subject at present available. The various other injection methods are discussed in Fantus's "Technic of Medication" (Chicago, American Medical Association, 1930).

BLINDNESS IN NEPHRITIC PATIENT

To the Editor:—What are the tests for blindness in case of a delirious nephritic patient? This is a case in which an insurance company requires evidence of blindness to prove the attending physician's diagnosis. Please omit name.

M.D., Pennsylvania.

ANSWER.—In an instance of this sort, in which subjective responses are out of the question, objective tests have to be relied on. If the pupillomotor apparatus is in order, the contraction of the pupil by direct light stimulation is proof positive that the retina and the optic nerve, at least as far as the corpora quadrigemina, are functioning. Direct and consensual contraction of each pupil will give positive information regarding the light perceiving function of each eye but does not permit of a measure of visual acuity. On the other hand, if the pupillomotor apparatus is not functioning, by reason either of disease or of drugs, there is no objective test that will allow of a diagnosis of absolute blindness.

SODIUM AMYTAL WITH THYMOPHYSIN

To the Editor:—I have been trying to find out whether any one has had any experience in obstetrics with sodium amytal followed with thymophysin. It seems to be poisonous to the baby. I shall appreciate it if you will let me know if there is an incompatibility.

H. C. PADGETT, M.D., Roanoke, Va.

ANSWER.—There are no special reports on the combined use of sodium amytal and thymophysin, but there appears to be no reason why a baby should be subject to more danger following the use of these drugs than would result from a simple summation of their potential dangers. Sodium amytal does not often affect a baby in utero. Thymophysin, however, frequently causes disturbances in babies, as evidenced by the increased and irregular fetal heart rate and tumultuous temporary activity that frequently occur after the administration of thymophysin. This is claimed to be a preparation of thymus and posterior pituitary. The Council on Pharmacy and Chemistry declared thymophysin unacceptable for inclusion in New and Nonofficial Remedies (THE JOURNAL, March 14, 1931, p. 860) because "it is an unscientific preparation marketed under false claims as to its essential action, as to its strength, and as to its safety for mother and child."

TREATMENT OF DIPHTHERIA CARRIERS

To the Editor:—What can be done for a persistent diphtheria carrier? Please omit name.

M.D., Minnesota.

ANSWER.—Any abnormal local condition should be corrected. Particular attention should be paid to the tonsils, because frequently removal of enlarged or diseased tonsils in diphtheria carriers has resulted in the disappearance of diphtheria bacilli from the throat. At the same time the general health and personal hygiene of the patient should receive special attention.

DIPSOMANIA AND NYMPHOMANIA

To the Editor:—What treatment do you advise for a woman, aged 43 and physically well, who is a dipsomaniac and also inclined to nymphomania? Would sterilization with irradiation be advisable? Please omit name.

M.D., California.

ANSWER.—Sterilization with irradiation or any form of physical treatment directed toward this patient would be a serious error. She apparently needs adequate psychiatric care, for both her symptoms are obviously in the realm of psychopathology.

THROMBO-ANGIITIS OBLITERANS

To the Editor:—Your answer to M.D., Kansas, April 18, page 1413, is incomplete. It is evident from the letter that the patient does not suffer from rest pains. If he is suffering from intermittent claudication, surely this can be controlled with the use of tissue extract and 5 per cent hypertonic saline solution intravenously. If there is a painless ulceration, rest in bed, wet dressings and 5 per cent saline solution intravenously will also take care of it. If the ulceration is painful, peripheral nerve section will convert the ulcer into a painless one and the wound will usually heal without any untoward complications. In this instance also, saline solution intravenously, beginning with 150 cc. for the first dose and using 300 cc. for subsequent doses is a valuable adjunct. In the presence of gangrene of the toe, rest in bed, wet dressings and 5 per cent saline solution intravenously will check the spread and delimit the gangrenous areas. No ill effects have been shown following such prolonged use of saline solution. The contraindications to the intravenous administration of saline solution are myocarditis, nephritis and hypertension.

Typhoid vaccine injected intravenously has given good results in the opinion of many clinicians, but the danger of administering typhoid vaccine intravenously is a thrombosis of the blood vessel. The contraindications to its use are myocarditis, nephritis, hypertension and arteriosclerosis.

Sympathetic ganglionectomy as you advised is not a simple procedure and subjects the patient to a major operation. It would be of no value if the occlusion in the blood vessel is organic in nature. Finally, let me emphasize that the treatment of thrombo-angiitis obliterans tends more to conservatism than to amputation.

THEODORE KAPLAN, M.D., New York.

TREATMENT OF SYPHILIS

To the Editor:—On page 1333 of the April 11 issue of THE JOURNAL Dr. George E. Knappenberger of Macomb, Ill., poses a question with reference to the fever treatment of a particular patient with neurosyphilis. The answer to this question advises against fever therapy in this individual patient. Whether or not this advice is sound could not be determined without much more information about the patient in question, including details as to his age, general physical status, and amount and character of previous treatment. I take particular exception, however, to the last sentence of the answer which reads: "Fever treatment is indicated only in dementia paralytica."

Fever treatment is indicated in many types of neurosyphilis other than dementia paralytica, among which may be specifically mentioned:

(1) Preparetic asymptomatic neurosyphilis.

(2) Neurosyphilitic patients whose spinal fluid remains unimproved after large amounts of chemotherapeutic treatment.

(3) Primary optic atrophy.

(4) Selected patients with tabes, particularly those with intractable lightning pains or gastric crises.

In additon, fever therapy is also indicated in drug-resistant syphilitic infection whether or not the nervous system is involved.

J. E. Moore, M.D., Baltimore.

FREEMARTINS

To the Editor:—Under Queries and Minor Notes in THE JOURNAL, April 11, page 1333, I saw an inquiry as to freemartins. Being interested in the breeding of high class cattle, I was interested very much. I have found that twins, when they have separate placentas, always breed. This observation is substantiated in the work of Leon F. Whitney, who explains this phenomenon by stating that when a freemartin does not breed it is due to the fact that there was one placenta for both twins, the blood of each flowing through the two, and in the process it is assumed that the testicles of the male secrete a hormone which is carried by the blood to the female, where it acts on her ovaries, thus retarding their development. When twins are born from separate placentas, the female is not likely to be sterile.

WALTER R. GRIESS, M.D., Cincinnati.

Council on Medical Education and Hospitals

APTITUDE TESTS FOR MEDICAL STUDENTS

CHARLES RUTHVEN FLACK
CHICAGO

"Then said they unto him, 'Say now Shibboleth'; and he said, 'Sibboleth' . . . then they laid hold on him, and slew him." Judges 12:6.

Writers interested in the historical aspects of tests and testing are continually seeking the origins and antecedents of their subject, but no sooner does one discover that the Chinese made extensive use of tests and measurements before the year 1000 than another comes forward with an earlier example, and so on ad infinitum. Such historical delving is no doubt interesting and perhaps instructive but not extremely useful, and for most purposes a glance into the past, near or far, is most helpful when it brings to light the origins of movements or tendencies relating to specific testing problems, and most particularly when it traces the causes and developments that led to the production of specific tests.

In studying aptitude tests for prospective medical students, therefore, it might be well to look into the events leading up to their devising and early application, for the magnitude of the task of making up and administering these tests on such a wholesale basis was so great that it is very evident that they were undertaken to fulfil a definite purpose and were not merely academic exercises to enable students and scholars to display their ingenuity in psychologic gymnastics.

One finds two chief factors which were mainly responsible in turning the attention of the officers of medical schools toward the possibilities of aptitude tests in solving their problems. Perhaps the first factor, in time rather than importance, was the dissatisfaction of medical men in general and the faculties of medical schools in particular with the large number of failures among students admitted to the various schools.[1] This feeling of discontent was without doubt greatly intensified by the study of the scores of medical men on the Army Alpha tests reported by Yerkes[2] in 1921, but more or less public even in 1917 while the tests were being administered to the members of the draft army. Adverse public criticism was directed toward the state of affairs, and the faculties and officers of administration of the medical schools were thus brought to a vivid realization that the M.D. stamp was not necessarily a badge of great merit, intelligence and efficiency. Something had to be done or else the medical profession in general would suffer from the severe criticism because of the poor showing of many of the marginal individuals who had filtered into the ranks.

The methods of selecting applicants for admission to medical schools at that time were fairly rigidly prescribed in the by-laws of the Association of American Medical Colleges,[3] but the requirements were quantitative rather than qualitative: sixty semester hours in an approved institution, and certain credits in premedical subjects, such at chemistry, biology and botany.

In addition to the dissatisfaction with regard to the finished product of the medical school there was a feeling, already mentioned, that the mortality in the medical courses (scholastic mortality, of course) was quite too high, for failures ran as great as 20 per cent in some institutions.

1. Capen, S. P.: Premedical Education, Bull. A. Am. M. Coll. 1: 5, 1926.
2. Yerkes, R. M.: Memoires of the National Academy of Sciences, 1921, pp. 22-26.
3. Association of American Medical College By-Laws: Minimum Entrance Requirements, Bull. A. Am. M. Coll. 1: 5, 1926.

That this dissatisfaction was widespread is evidenced by the number of references and complaints found in the writings and utterances of the officials of the medical schools and members of the profession.[4] No one, however, came forth with any constructive suggestions.

MULTIPLE APPLICATIONS

The second and more important factor that influenced the evolution of the medical aptitude tests was the ever growing number of applicants and applications for admission to medical schools. In the first two decades of the twentieth century the expansion of the medical schools seems to have kept pace with the increase in the number of students aspiring to become doctors, but by the fall of 1919 the schools began to note such increases in the number of students seeking admission that a large number of really eligible students had to be denied entrance each term, even although many of them more than met the minimum requirements of the association. Then, too, multiple applications began to be very common, for the prospective student, fearing lest his application for admission to one school be refused, entered his request in another at the same time, or even a considerable number.

As might have been expected, the pressure for admission was greatest in the more thickly populated part of the country, in other words the so-called effete East, and accordingly it was here that one finds the first studies being made of the situation, although other sections soon followed suit. It is possible that the long experience with the selective processes on the part of the private schools and colleges in the East was largely responsible for the movement starting there. Cattell, for example, had been making use of tests in a number of ways, and for various purposes, including selection, at Columbia since 1894.[5]

In 1926 Dr. Burton D. Myers was asked to make a report to the Association of American Medical Colleges on the problem of applicants and duplicate applications. This report,[6] delivered before the association at the thirty-sixth annual meeting, so impressed the members that Dr. Myers was authorized to continue his study and submit the results the following year. From that time on the report on applications became an annual event of greater or less importance at each conference of the association.

The first report by Myers noted that there were 20,093 applications submitted by 8,500 individuals seeking admission to medical schools in the fall of 1926 but that only 6,420 were accepted.[7] Duplication of applications ran as high as twenty. During the discussion of the paper which followed the question was raised by Dr. A. S. Begg of the Boston University School of Medicine as to the methods used by the various schools in rejecting applications, and it was brought out very clearly that there was absolutely no uniformity of procedure in refusing admittance to students who fulfilled the minimum requirements of the association. Thus a man might be denied his permit to enter by ten institutions yet be granted one by the next.

In this manner the problem was brought more forcibly to the attention of all the members of the association, and a number began to experiment with methods of selection beyond the minimum mentioned in the by-laws. Some, however, as previously suggested, had already begun to do something about it.

Thus Dr. John Wyckoff of the New York University College of Medicine reported at the thirty-seventh annual meeting of the association on efforts to cope with the problem.[8] According to his statements, beginning with the fall of 1919 New York University College of Medicine had received more applications from eligible students than could be admitted. By 1921 the excess was "so large that a definite plan for selection became necessary" (p. 1).

RECOGNITION OF NEED FOR SELECTIVE CRITERIA

A combination of scholarship and personality ratings was put into operation. Students with A and B averages in their collegiate work were admitted without further question, provided, of course, that their recommendations were satisfactory and that there was no definite reason for their being barred from entrance. Students with B— and C averages, however, were rated as to the desirability of their personalities, and the ones scoring highest on the scale used, which was a simple five point one, were admitted to fill any places not taken by the A and B men. After a year of trial it was felt that the personality ratings were too subjective, and thereafter admissions were awarded entirely on a basis of scholarship in the premedical subjects. It was noted that the percentages of failures fell considerably almost at once.

The University of Nebraska was also experimenting with selective devices, as was reported by Dr. Franklin D. Barker.[9] The "Nebraska plan" was to appoint advisers from the members of the liberal arts faculty to watch over the premedical students in order to note special medical aptitude and to encourage or discourage them as they saw fit. The report was rather vague as to methods of identifying aptitude, and it seems that no general technic was followed. No special training was given to the advisers, and the dangers of proselytizing does not appear to have been considered. It is rather amusing to note that one of the results produced was "an increase from 25 per cent to 70 per cent in the number of our own premedical students pursuing the medical course in our own college of medicine" (p. 18).

In the same issue of the *Bulletin* there appeared a report by Dr. Arthur C. Curtis[10] of the University of Michigan Medical School on women students of medicine, in which he dealt with the qualifications of women medical students and their scholastic records. No comparison was made which indicated that they were better or worse than students of the opposite sex.

The presentation of these studies and their accompanying statistics aroused the association to still more activity, and the following year at the thirty-eighth annual meeting a report was made to the members by Dr. A. S. Begg,[11] chairman of the committee on medical education and pedagogics, in which he suggested, among other things, "the creation of some sort of central agency" (p. 66) to handle the growing problem of applications for admission to the medical schools. However, no action was taken, apparently, by the association at that meeting.

Dr. Myers[12] made another report covering the applications for admission to medical schools for 1927-1928 at the same meeting. It showed rather emphatically that the rush to break into the ranks of the medical men had not abated one whit, for there were now 23,590 applications from 11,282 individuals, increases of 17 per cent and 32 per cent respectively, while the number of acceptances had increased only a trifle over 1 per cent, to 6,495. It was noted that one individual, in a desperate

4. Bull. A. Am. M. Coll., volume 1.
5. Hull, C. L.: Aptitude Testing, Yonkers, N. Y., World Book Company, 1928, p. 9.
6. Myers, B. D.: Disposition of Applications for Admission to Schools of Medicine for 1926-1927, Bull. A. Am. M. Coll. **1**: 97-102, discussion pp. 102-104 (April) 1927.
7. The actual enrolment in the fall of 1926 was 5,019.
8. Wyckoff, John: Relation of Collegiate to Medical Student Scholarship, Bull. A. Am. M. Coll. **2**: 1-12, discussion pp. 12-16 (Jan.) 1927.
9. Barker, F. D.: Determining the Fitness of the Premedical Student, Bull. A. Am. M. Coll. **2**: 16-19, discussion pp. 19-20 (Jan.) 1927.
10. Curtis, A. C.: The Woman as a Student of Medicine, Bull. A. Am. M. Coll. **2**: 140-148, 1928.
11. Begg, A. S.: Report of the Committee on Medical Education and Pedagogics, Bull. A. Am. M. Coll. **3**: 63-66, 1928.
12. Myers, B. D.: Report on Applications for Matriculation in Schools of Medicine for 1927-1928, Bull. A. Am. M. Coll. **3**: 193-198, 1928.

effort to gain admittance, had applied to thirty-seven schools,[13] while two others sent in applications to twenty-seven institutions in order to make sure of being accepted. The report ended with an appeal for a more careful method of selecting medical students but emitted this plaint (p. 198): "But do we know how to select superior men? Psychologists tell us that psychological tests furnish only contributory, not conclusive, evidence of ability. Recommendations any one can and does get. The personal interview, though very important, is again only a factor in the selection. The transcript of record shows only what the student has done under a certain environment and stimulus." One might almost believe that the man who wrote those words was a psychic and seer, so well do they indicate the development of the future.

Reports made at subsequent meetings of the association by Dr. Myers on the applications received by medical schools indicated a continued growth in the number both of applications and of applicants. No further mention of these reports will be necessary, for enough of them has been cited to show that the association was alive to the crying need for some selective criteria on which schools could base their admissions and rejections. All of the eighty-five schools comprising the association membership were well aware of the graveness of the situation.

At the thirty-ninth annual meeting of the association, held in Indianapolis Oct. 29-31, 1928, Dean Waldo Shumway of the College of Liberal Arts and Sciences of the University of Illinois delivered an address[14] in which he suggested a liberal arts education as a premedical requirement—an education containing, of course, the prerequisites in science demanded by the medical schools. He did not, however, offer any study of the success of students possessed of such an education after they had entered the medical school, although many such were doing so, and no doubt records were available had he taken the trouble to look into them.

With the fourth volume of the bulletin the name was changed to the *Journal of the Association of American Medical Colleges,* but it continued to give a number of articles or reports dealing with the situation and its possible solution just as previously. Thus is found an interesting report by Dr. Begg[15] reviewing conditions and making full use of much of the material and information in the Myers reports and also reports of the Council on Medical Education and Hospitals of the American Medical Association. Begg was chiefly interested in the scholastic mortality of medical students and presents tabulations showing this mortality in percentages as well as in absolute numbers, covering the period from 1907-1908 to 1925-1926. Percentages were fairly constant during that time, running around 18 to 20.

The associate dean of Columbia University College of Physicians and Surgeons also presented a study in this volume,[16] a comparison of premedical and medical grades, in which he found that "the average grade of all the subjects studied at college was a rather better indication of the character of the work a student would do in the medical school than the average grade of the premedical required subjects alone" (p. 199). This was contrary to the experience of other investigators. The facts mentioned in the report, however, were not tabulated, nor were statistical measures given in a clear enough manner to make plain the exact comparisons implied in the title.[17]

Considerable interest was aroused over the phenomenon of multiple applications, particularly since the earlier report concerning the student who had submitted thirty-seven applications and had been refused admission by the thirty-seven institutions.[13] It was suspected in some schools and by not a few medical men that the number of applications might be an inverse indication of the student's ability. This suspicion was relieved, however, by reports at the fortieth annual meeting of the association, held in New York City on Nov. 7-9, 1929, presented by Adam M. Miller,[18] dean of Long Island College of Medicine, A. S. Begg,[19] and Father Alphonse M. Schwitalla,[20] dean of the St. Louis University School of Medicine. Although the number of cases covered by each investigator was somewhat too small to ensure a great deal of validity, nevertheless the evidence was pretty conclusive that the number of applications a prospective student submitted was no indication whatever of his ability to do satisfactory work in the medical school.

Feb. 18, 1929, Dr. David A. Robertson,[21] assistant director of the American Council on Education, read a paper before the Annual Congress on Medical Education, Licensure and Hospitals at Chicago in which he ably reviewed the advance of scientific testing in various fields and then gave a detailed account of the beginnings of medical aptitude testing undertaken at George Washington University.

BEGINNINGS OF MEDICAL APTITUDE TESTING

He described the tests used as follows (p. 1404):

During the first ten minutes the student studies a diagram and a paragraph about the heart and great vessels; during the next five minutes the student studies a passage such as may be found in medical literature. Then for the remainder of an hour the student, working as rapidly as possible, takes six tests: (1) a scientific vocabulary test of forty items; (2) a test of premedical information (100 items); (3) a visual memory test of twenty items based on the diagram first studied; (4) a memory content test based on the paragraph first studied (twenty items); (5) a comprehension and retention test (twenty items) based on the passage in "Speech Defects," and finally (6) a test of the "understanding of printed material" (fifteen items).

Dr. Robertson also touched on what is usually considered a sacred subject—personality—as well as taking a rap at subjective ratings. He indicated that even such imponderables as personality traits might one day be measured objectively and scientifically, which was most likely considered as rank heresy even eight years ago.

At the next (the forty-first) annual meeting of the Association of American Medical Colleges, Dr. F. A. Moss of George Washington University read a paper similar to that presented to the American Medical Association by Dr. Robertson, and thus for the first time the members of the association glimpsed a path out of the labyrinth in which they had been wandering for so many years. The length of the report[22] and the animated discussion that followed it gave an excellent indication of the importance of the subject and the interest with which it was received. As Dr. Moss had been largely instrumental in devising the tests, his report was of much greater importance than that of Dr. Robertson. His interest was chiefly centered in the results of the testing program, and he referred his listeners to the Robertson article in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for the details of the actual tests.

The program had been put into operation in the fall of 1927 by applying the tests to the freshman class at George Wash-

13. Incidentally, he was refused by all!
14. Shumway, Waldo: Premedical Education from the Standpoint of the Liberal Arts College, J. A. Am. M. Coll. **4**: 111-115 (April) 1929.
15. Begg, A. S.: Methods of Selection of Medical Students, J. A. Am. M. Coll. **4**: 193-197, discussion pp. 197-198 (July) 1929.
16. van Beuren, F. T.: Correlation of Grades in Medical and Premedical Work with Personality, J. A. Am. M. Coll. **4**: 199-201, discussion pp. 201-204 (July) 1929.
17. Throughout these articles one is almost always struck with the lack of statistical technic, which would greatly clarify them.
18. Miller, A. M.: Academic Achievements of Multiple Applicants, J. A. Am. M. Coll. **5**: 9-12 (Jan.) 1930.
19. Begg, A. S.: The Scholastic Achievements of Multiapplicants, J. A. Am. M. Coll. **5**: 13-15 (Jan.) 1930.
20. Schwitalla, A. M.: The Scholastic Achievements of Multiple Applicants, J. A. Am. Coll. **5**: 16-23, discussion pp. 23-26, (Jan.) 1930.
21. Robertson, D. A.: Educational Relations of the Professions, J. A. M. A. **92**: 1402-1406 (April 27) 1929.
22. Moss, F. A.: Scholastic Aptitude Tests for Medical Students, J. A. Am. M. Coll. **5**: 90-101, discussion pp. 101-110 (March) 1930.

ington University School of Medicine and then comparing results with the scholastic achievements at the end of the first year. Results were so generally indicative of the value of the tests that it was decided to administer them to entering students in other medical schools in the fall of 1928. Twenty-two colleges, widely separated geographically, were prevailed on to cooperate. The tests were accordingly given to the freshmen and at the end of the year the grades made by this sampling of medical students were tabulated and compared with the test scores. Even a cursory examination of the results of this comparison made it very evident that, although far from perfect, an instrument had been devised which would give a far better prediction of the ability of a prospective medical student to achieve grades of a satisfactory quality in medical school than anything previously tried out. The correlation between test scores and medical school grades for the whole group was 0.59, while in two institutions it ran up to 0.72, and in only two cases did it fall as low as 0.45.

Following this initial correlation, the test scores were then compared with various other factors and criteria in order to discover, if possible, some multiple correlation relationships that might give more reliable results. For example, the number of semester hours offered by the student for entrance to the medical school was correlated with the grades made in medical school at the end of his freshman year. This produced a coefficient of but 0.09. Grades in premedical subjects gave a correlation with freshman medical school grades of 0.50. Thus the aptitude test scores gave a superior predictive criterion for success in medical school than either of the most used criteria evolved previously.

When the aptitude test scores and premedical grades were intercorrelated with the freshman grades, a coefficient of 0.65 was the result.[23]

A rather disturbing factor disclosed by the study of the test scores and grades was the wide range in the quality of the students as represented in the twenty-two institutions. Although the distribution of the grades made by the freshmen in the individual schools was practically normal, nevertheless the median scores on the tests for the men in each school ranged from a low of 94 in one to a high in another of 194, a condition which indicated, granting that the aptitude tests had a high degree of validity, that there was something lacking in the methods of choosing medical students in some of the schools.

After considerable discussion, both pro and con, of the results of this preliminary testing as outlined by Dr. Moss, the executive body of the association was authorized by the members to appoint a committee[24] to "direct an experimental study of aptitude tests for admission to medical studies."[25]

Although it was fairly evident that the aptitude test was to provide the medical schools with an instrument adequate to sift the able students from the undesirables, nevertheless studies continued to be made as to other means of attaining this end, and in the July issue of the *Journal* there appeared an article by the editor[26] on the credentials presented by freshmen for entrance to the member institutions of the association in the preceding fall, showing the tendency of students to offer more and more academic qualifications. The author found but little correlation between the number of semester hours offered and subsequent performance in the schools, just as had been shown by the Moss report but contrary to the observations of van Beuren.[16]

23. Interpolated graphically, since the figure was not given by Dr. Moss.
24. Personnel of the committee: Torald Sollmann, chairman; F. A. Moss, William Darrach, Ben Wood, H. G. Weiskotten.
25. Moss, footnote 22, page 110.
26. Zapffe, F. C.: Analysis of Entrance Credentials Presented by Freshman Admitted in 1929, J. A. Am. M. Coll. 5: 231-234 (July) 1930.

PROGRESS OF THE PROGRAM

At the forty-first annual meeting of the association, held in Denver Oct. 14-16, 1930, Dr. Moss reported on the progress of the testing program carried on by the committee, of which he had been appointed secretary. This report[27] covered the testing done on the freshmen of 1929, the grades made by them at the end of their first year in medical school, and also a study of the group tested in the preliminary program the previous year. Some seventy medical schools cooperated, and the 1929 students were about four times as numerous as those of 1928.

Again the value of the aptitude tests was demonstrated in an unmistakable way. Grouping the students as a whole according to their aptitude test scores, it was found that there were absolutely no failures in medical school among the highest decile students, in either the 1929 or the 1928 classes, while 56 per cent of the students falling in the lowest decile failed. Scholarship records in the medical school correlated with the test scores as high as 0.73 in the sophomore group in one institution, and the average for the sophomores was 0.54. This coefficient was not corrected for the improvement in the group brought about by the elimination of the failing students of the first year, and therefore the real correlation, had it been calculated, would have been much higher.

Not only were the failures ranked inversely with the decile standing of the students, but the averages of the grades of those passing their two years of medical studies were arranged in the same order as the deciles. The average of those in the highest decile was 86 per cent, while those in the lowest decile made but 75 per cent. There were of course some exceptions, but many of these were fully accounted for by some unusual individual situation. For example, low grades were noted among students working their way through college while trying to carry a full load of courses, even when they had made very high aptitude test scores; then, too, the tests did not appear to be valid in the case of foreign speaking students.

Comparing medical school grades with premedical grades showed some positive correlation, but not as great as demonstrated by the aptitude tests.[28] Correlation of grades with interview ratings or personality traits was still less reliable but also was slightly positive, as was that between the number of semester hours offered by the students for admission to medical school when compared with the total grade averages.[28]

Various combinations of criteria were again tried out, although not described at length, such as premedical grades, aptitude test scores and personal interview ratings, and it was found that the combination of premedical grades and the aptitude test scores gave a predictive ratio of 73 per cent.

In passing I might note that at the same meeting a paper was presented by Robert C. Lewis of the University of Colorado School of Medicine, in which the author[29] went into considerable detail in explaining the scheme for admitting students to his college. It turned out to be the somewhat familiar premedical grades-character-personality stuff, which had been tried and found wanting by so many other institutions. The investigator admitted that scholastic mortality among medical school students at Colorado was from 20 to 25 per cent, which did not seem to imply a high reliability for the criteria employed.

In the general discussion that followed the reading of both these papers there was much adverse criticism of the aptitude tests and much emphasis on the impossibility of choosing a doctor by means of new-fangled tests cooked up by psychologists. Also there were some remarks on the imponderability of

27. Moss, F. A.: Scholastic Aptitude Tests for Medical Students, J. A. Am. M. Coll. 6: 1-16 (Jan.) 1931.
28. Correlation values not given.
29. Lewis, R. C.: Methods of Admitting Medical Students, J. A. Am. M. Coll. 6: 17-25, discussion (on this and the Moss paper) pp. 25-35 (Jan.) 1931.

personality—indeed, most of the old stock objections to the scientific measurement of human nature were trotted out, but Dr. Moss's impressive figures convinced almost every one, and it was apparent from the trend of the discussion that the aptitude tests had so demonstrated their value as predictive instruments that they had come to stay. Later on in the same convention the association adopted a resolution endorsing the use of the tests as an additional criterion for the selection of medical students and suggested that the member institutions make the test a normal requirement for admission,[30] although there is no mention of the new criteria in the official requirements for admission in the extracts from the by-laws of the association reprinted in the *Journal* at that time.[31]

The tests for 1931-1932 were carefully revised and new forms made up.[32] As given in the fall of 1931 they consisted of six parts: (1) scientific vocabulary, (2) visual memory for anatomic drawings, (3) memory for descriptive material, (4) premedical information, (5) learning and retention of material and (6) understanding of difficult printed material. The whole test was to require one and one-half hours of the student's time to finish. For the first time the tests were given in colleges and universities offering premedical instruction but not having medical schools of their own—these in addition, of course, to those institutions maintaining departments of medicine. In all, 547 colleges and universities cooperated. Tests were administrated to all prospective medical students, and the testing took place at the same hour[33] and on the same day, and, with the fine disregard of the scientist for common superstition, that day fell on Friday the thirteenth of February 1931.

The preliminary report covers test results of 9,220 students, a very considerable increase over previous years but considerably less than the usual number of applications received by the medical schools. As heretofore, New York and Pennsylvania lead by a wide margin all other states in the number of students seeking admission.

In the next issue of the *Journal* appeared an article by Dr. W. D. Reid,[34] who had been one of the opponents of the aptitude testing program, in which he tacitly acknowledged the status quo by saying that selection of medical students was based on "(1) scholarship, (2) personality and (3) the aptitude test. . . . The latter," he noted (p. 352), "is a recent method which gives promise of being very helpful."

Meanwhile, at the University of Michigan Dr. C. S. Yoakum, of Army Alpha fame, was experimenting with tests independently of the work of the committee of the association, and he evolved a vocabulary test and a reading test in an endeavor to predict the success of students in later medical studies. The results of this attempt were reported to the association by Miss Doris F. Twitchell.[35] Grades in the University of Michigan Medical School were correlated with a number of factors, such as place of residence, sex, age, institution previously attended, hours of premedical work, and premedical grades. Coefficients of correlation were not given in each case, so it is almost impossible to rank the various factors in order of their predictive value; but a study of the grade averages in relation to the criteria would indicate that the best one discovered was the premedical grades. Even here, however, the correlation was but 0.37, which, compared with that of the medical aptitude tests devised by Dr. Moss, was very low indeed. The study at Michigan was continued even though the results were so inferior.

The final report of the aptitude test committee for 1931 was made by the secretary,[36] Dr. Moss, at the forty-second annual meeting of the association in New Orleans, Nov. 30 to Dec. 2, 1931. It was considerably longer and more detailed than any previously given on the testing program but added little except elaboration to the preliminary report published in the *Journal* at the beginning of the year.[37] Correlation of the test scores and premedical grades with medical school grades ran as high as 0.81 in one institution — Stanford University School of Medicine.[37]

At the close of the report Dr. Moss announced that the fourth form of the aptitude test was to be administered Dec. 11, 1931, and that there would be some changes in it from previous forms.

SEARCH FOR OTHER CRITERIA

In spite of the considerable success of the tests, a number of medical schools continued to push forward with independent studies to discover a criterion that might be more valid and reliable in predicting the success of their students. These studies were reported on from time to time, either as papers read before the members of the association in its annnal meetings or in the form of articles in the *Journal*. Thus, Walter H. Moursund[38] read a report before the same meeting on the experiments carried on at Baylor University College of Medicine. Again it was noted that of the factors studied premedical scholarship was the best criterion on which to base prediction of achievement in medical school. He stated, however, that, although general scholarship and other factors were used by his institution as criteria of admission, nevertheless "none of these factors seemingly had a constant relation from year to year" (p. 149). Throughout the paper the absence of correlation figures makes comparisons difficult if not impossible.

Chicago, too, was carrying on experiments with selective criteria on which to base their choice of students for the medical schools of the university, and W. F. Cramer, statistician in the office of the registrar, wrote a report[39] on the results. A study of the students enrolled in 1918, 1919 and 1920 was made, which included 294 cases, and various factors which might affect scholarship in the medical school were carefully weighed and correlated with one another. For example: 1. The relation of success in the medical schools to the age of the student at the time of entering. It was found that while there was some indication that the more mature student would achieve better success, nevertheless the correlation with age was so small as to be practically negligible. 2. The relation of scholarship in premedical courses to success in the medical schools. Here appeared the best correlation obtained, 0.53 between medical grades and the total premedical program and 0.38 between grades and the natural sciences taken as premedical subjects. Correlations for students taking both medical and premedical work in the university ranged from 0.76 to 0.56 when calculated for the relationships previously mentioned. 3. No significant relation was found between the type of institution previously attended and success in medical school, except for those taking all their work at Chicago. 4. The amount of

30. Endorsement of Aptitude Tests, J. A. Am. M. Coll. **6**: 47 (Jan.) 1931.
31. Requirements for Admission to Medical Colleges, Extracted from the By-Laws, J. A. Am. M. Coll. **6**: 107 (March) 1931.
32. Moss, F. A.: Medical Aptitude Tests for 1931-1932: Preliminary Report, J. A. Am. M. Coll. **6**: 304-308 (Sept.) 1931.
33. It is not stated whether the "hour" was solar or standard time, but since the schools were spread over a wide area, from Maine to Hawaii, with a standard time difference of six or seven hours, it is quite probable that it was standard time. Hence the insistence on having the students take the tests at the same hour seems to have little real sense behind it.
34. Reid, W. D.: Premedical Education, J. A. Am. M. Coll. **6**: 345-356 (Nov.) 1931.
35. Twitchell, Doris F.: Report of Data Pertinent to the Problem of Selection of Medical Students, J. A. Am. M. Coll. **6**: 357-361 (Nov.) 1931.
36. Moss, F. A.: Report of the Committee on Aptitude Tests for Medical Students, J. A. Am. M. Coll. **7**: 129-141, discussion pp. 141-148 (May) 1932.
37. The correlation of the other extreme is not given.
38. Moursund, W. H.: Premedical Qualifications in Relation to Achievement in Medical School, J. A. Am. M. Coll. **7**: 149-157 (May) 1932.
39. Cramer, W. F.: Study of the Selective Admission of Students in the Medical Schools of the University of Chicago, J. A. Am. M. Coll. **8**: 347-357 (Nov.) 1933.

academic preparation also proved to have but little relation to medical school success. In other words, the only criterion discovered that was worth anything was scholarship in premedical courses, and this alone did not produce particularly high correlation coefficients, with the exception of those students who did not transfer from one institution to another.

It seems to be rather significant that from this time on less and less is to be heard of the aptitude tests for medical students. True, Dr. Moss [40] continued to give his report to the association year by year, but the high correlation with the tests and success in medical school compared with the much lower correlation with other criteria and tests, and the still greater correlation produced in conjunction with the premedical grades, eventually seems to have convinced practically all members of the association of their sound worth, and opposition to them dwindled at a steady rate.

Since the 1932 tests were to be administered in December 1931, several months earlier in the year than previously, they were altered to compensate for the lesser amount of knowledge of premedical matters possessed by the student. Another change was the addition of another part—ability to follow directions. Changes introduced from form to form were slight and in general merely followed new developments in psychologic and educational testing technics. For example, the "alternative choice" type of question was considerably reduced in number in favor of "matching" forms of questions. The pre-

Proportion of Applications to Applicants *

1926/27	1927/28	1928/29	1929/30	1930
2.0	2.1	2.33	2.33	2.56

* Calculated from data on page 66 of the second report.

medical information part was dropped, since it had been decided that a combination of the aptitude test and premedical grades gave the best criterion of success in medical school, and the premedical information part was merely a test of the same factor. In its place was substituted a medical vocabulary test that seemed to have a high selective value.

A mild revolt against the tests took place at the 1932 meeting of the association, led, strange to say, by Dr. E. B. McKinley, dean of George Washington University School of Medicine, the institution that might be termed the birthplace of the whole testing program. The uprising was very feeble and ill sustained and seems to have been based on the theory that correlations of from 0.50 to 0.65 were practically useless for predicting success in medical schools, and it quite ignored the fact that there was nothing better available and that a selective criteria was in greater need than ever, for Dr. Zapffe's reports showed that, while the number of applicants and applications for admission to medical schools showed a slight decrease, which was due no doubt to the depression, the number of credits offered for admission, that is, the qualifications of prospective students, was steadily rising, and the number of multiple applicants in proportion to the number of applicants was also continually increasing.[41]

The fruits of the aptitude testing program had already begun to be apparent in 1932, as was shown in a report by Dr. Zapffe, in which he noted a distinct decrease in the scholastic mortality of freshmen in both 1930 and 1931,[42] although, strange to say, he does not appear to see the causal relation, for he asks oratorically "Can this be charged to better preparation for the study of medicine?" [43] Mortality for 1932 was somewhat higher than in 1931 but still considerably below the average of preceding years (p. 160).

In 1934 a special committee was appointed by the association to study the tests and to deliver a report at the next meeting, the forty-sixth, held in Toronto Oct. 28-30, 1935. The report [44] was presented by the chairman, Alan M. Chesney, and covered tests administered to 6,000 students in various schools all over the United States, as well as an intensive study of a random sampling of 800 students. Special investigations of several individual institutions were also made.

The report went into the broader aspects of the testing program and dealt very fully with the difficulties and shortcomings of such an ambitious undertaking, concerning as it does a large number of students scattered over a wide geographic area and varying greatly in ability, education, background and motivation. It was found that some schools in the more thickly populated parts of the country were able to choose their students from among those in the higher brackets of the aptitude test scores, while others were more or less forced to admit students from a much wider range of scores. This difference tended to produce a lower correlation, since there is always a very strong tendency for grades in any subject to be grouped according to the normal curve. Thus in one school all failures might occur in the 50-75 percentiles, there being no students admitted below the fiftieth, while in another institution those students in the 50-75 percentiles might conceivably be rated A if there were few or none coming from the upper quartile of the test scores. In this way the tests would be blamed for a fault that was not inherent in them but in their application by the various schools.

The committee decided that the value of the tests depended on the way in which they were used. In good hands the results were distinctly beneficial.

CONCLUSION

Enough has been written perhaps to prove that the aptitude tests have gone a long way toward solving the problem of selecting applicants to medical schools. Each school, at present, is of course a free agent in choosing the students to fill the limited numbers of its student body, but it would appear that a better method would be to restrict admission to any school to students scoring above the median, and to prorate these superior individuals to the various colleges of medicine. However, such a regimentation would raise a tremendous protest from the rugged individuals, both on faculties of medicine, in the profession, and in the ranks of the students themselves. Meanwhile, the public will have to suffer when the incompetent medical student finally emerges from his internship and begins to practice in more than one sense of the word.

Two problems suggest themselves from this survey of aptitude tests applied to a particular field. First, the possibility or even certainty that correlations of a fairly scientific instrument such as the medical aptitude test with the more or less haphazard and almost wholly subjective grades given out by the average college and university instructor, are much lower in many cases than they would be were medical grades based on subject tests standardized for the whole country. This would probably do away with the complaints of high aptitude test students being given low grades in one school and the

40. Moss, F. A.: Scholastic Aptitude Tests for Medical Students: Report for 1932, J. A. Am. M. Coll. **8**: 1-14, discussion pp. 15-27 (Jan.) 1933.

41. Zapffe, F. C.: Analysis of Entrance Credentials of the Freshman Class, 1931-1932, J. A. Am. M. Coll. **8**: 40-45 (Jan.) 1933; Report on Applications for Matriculation in Seventy-Eight Schools of Medicine of the U. S. for the Freshman Class of 1932, ibid. **8**: 65-78 (March) 1933.

42. Zapffe, F. C.: Study of Student Accomplishment, Freshman Class of 1931, J. A. Am. M. Coll. **8**: 159-180 (May) 1933.

43. Zapffe, F. C.: Study of Student Accomplishment in Seventy-Nine Medical Schools of the U. S. Freshman Class of 1932, J. A. Am. M. Coll. **8**: 331-346 (Nov.) 1933.

44. Evaluation of the Medical Aptitude Test: Report of the Special Committee on the Evaluation of Aptitude Tests for Medical Students: Report, J. A. Am. M. Coll. **11**: 15-32 (Jan.) 1936.

opposite state of affairs in another. Thus the development of standardized tests in medical subjects should be promoted.

Perhaps the more serious problem is the second one suggested; that is, the relation of test scores and medical school grades to the excellence of the finished product of the medical school. It does not necessarily follow that the 98 percentile, A student from a class A school will become a successful practitioner, and so far no one seems to have any instrument of predictive value adequate for this task. The profession and the public wait for some one to evolve a measuring stick which will, when laid on the stream of consciousness, to paraphrase William James, say "Here is another Hippocrates, Harvey, Osler, or even perhaps Mayo." We also await the millennium.

1035 East Sixtieth Street.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALASKA: Juneau, Sept. 1. Sec., Dr. W. W. Council, Juneau.

ARIZONA: Phoenix, July 7-8. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, Nov. 10. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic).* Little Rock, Nov. 10. Sec., Dr. Clarence H. Young, 207½ Main St., Little Rock.

CALIFORNIA: San Francisco, July 6-9, and Los Angeles, July 20-23. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 7. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Medical (Regular).* Hartford, July 14-15. *Endorsement.* Hartford, July 28. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, July 14. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 14-16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: Washington, July 13-14. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

HAWAII: Honolulu, July 13-16. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDAHO: Boise, Oct. 6. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

IOWA: *Basic Science.* Des Moines, July 14. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

MAINE: Augusta, July 7-8. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, July 14-16. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MONTANA: Helena, Oct. 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEW HAMPSHIRE: Concord, Sept. 10-11. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW MEXICO: Santa Fe, Oct. 12-13. Sec., Dr. Le Grand Ward, Santa Fe.

NORTH DAKOTA: Grand Forks, July 7-10. Sec., Dr. G. M. Williamson, 4½ S. 3d St., Grand Forks.

OREGON: *Basic Science.* Corvallis, July 18. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 7-11. Sec., Board of Medical Education and Licensure, Mr. Clarence E. Ackley, 400 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 1. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

SOUTH DAKOTA: Rapid City, July 21-22. Dir., Division of Medical Licensure, Dr. Park B. Jenkins, Pierre.

UTAH: Salt Lake City, July 10. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

WASHINGTON: *Basic Science.* Seattle, July 9-10. *Medical.* Seattle, July 13-15. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

WEST VIRGINIA: Bluefield, July 13. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B candidates will be held in various cities in the United States and Canada, Nov. 7. *Applications must be filed at least sixty days prior to the examination.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: New York, Sept. 26. *All applications and case reports must be filed sixty days before date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Cleveland, Jan. 9. Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, Sept. 25-26. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Baltimore and Cincinnati in November. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 29-30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Cleveland, Sept. 25-27. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

West Virginia March Report

Dr. Arthur E. McClue, State Health Commissioner, reports the oral and written examination held in Charleston, March 16-18, 1936. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Eleven candidates were examined, all of whom passed. Ten physicians were licensed by reciprocity and 3 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1934)	88.4
Rush Medical College		(1935)	87.5, 88
Washington University School of Medicine		(1934)	89.1
Cornell University Medical College		(1934)	90.2, 91.4
New York University, University and Bellevue Hospital Medical College		(1934)	89.9
University of Pennsylvania School of Medicine		(1931)	89.7
Medical College of Virginia		(1932) 85.4, (1934)	87.7
University of Western Ontario Medical School		(1929)	87.3

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Indiana University School of Medicine		(1929)	Indiana
University of Louisville School of Medicine		(1930)	Kentucky
University of Maryland School of Medicine and College of Physicians and Surgeons		(1933)	Maryland
Washington University School of Medicine		(1927)	Missouri, Tennessee
University of Buffalo School of Medicine		(1933)	Penna.
University of Pittsburgh School of Medicine		(1930)	Penna.
Medical College of Virginia		(1930)	Pennsylvania, (1933, 2) Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School		(1933)	N. B. M. Ex.
Duke University School of Medicine		(1933)	N. B. M. Ex.
University of Cincinnati College of Medicine		(1923)	N. B. M. Ex.

Book Notices

Your Hay Fever. By Oren C. Durham, Chief Botanist, Abbott Laboratories, North Chicago, Illinois. With an introduction by Morris Fishbein and a chapter on Treatment by Samuel M. Feinberg, M.D., F.A.C.P. Cloth. Price, $2. Pp. 264, with 19 illustrations. Indianapolis & New York: Bobbs-Merrill Company, 1936.

While this book is written primarily for the layman, and especially for the two million or more in this country who are affected by hay fever, its wealth of material should likewise appeal to the general practitioner. The author, a botanist, has been associated for the past twenty years in the research work of some of the pioneers in allergy. His chief contribution in recent years has been the organization of a national pollen survey with numerous stations for daily atmospheric studies throughout the country. The style with which the material is presented is narrative with subtle humor, which adds to the zest and helps maintain the interest. The first hundred pages is devoted to a historical outline of the research that led to our present conception of hay fever, with special emphasis on the discovery of the relationship of air-borne pollens to the symptoms. Blackley's research work is presented in detail. The development of our present method of hyposensitization by pollen injections is treated much too briefly. The arrival at our present understanding of anaphylaxis is hardly mentioned. The work of Richet and Portier, of Theobald Smith and Pirquet is omitted, probably to avoid confusion in a work written for the layman and limited to pollinosis. In the second hundred pages the author gives the history of pollen surveys, the methods used, the results of such studies, and the relationship of tree, grass and weed pollens to symptoms. Present methods of treatment are discussed in the last fifty pages. Dr. Feinberg devotes about half of this space to an excellent discussion of hay fever resorts. His table showing the atmospheric pollen studies in these is of value as an index of the degree of relief to be expected in each. The book gives a clear, intelligent presentation of the history, research and treatment of hay fever. Written primarily for the layman, its wealth of material makes it valuable also for the general practitioner.

The Treasury of Human Inheritance. Edited by R. A. Fisher, F.R.S., Galton Laboratory, University of London. Volume IV: Nervous Diseases and Muscular Dystrophies. Part II: On the Peroneal Type of Progressive Muscular Atrophy. By Julia Bell, M.A., M.R.C.P. Paper. Price, 12s. 6d. Pp. 140, with illustrations. London: Cambridge University Press, 1935.

A valuable service both to medical men and to those interested in genetics has been performed by the Galton Laboratory of the University of London in compiling the series of publications known collectively as the "Treasury of Human Inheritance." The study on the inheritance of peroneal atrophy brings together a large amount of material and crystallizes knowledge concerning the heredity of this interesting malady. The age of onset was found by Bell to vary widely, each affected family providing a study in itself and tending to have its individual characteristics from the point of view of clinical symptoms, resulting disability, and age of onset. It is interesting to note that individuals of the same sibship tend to be affected at about the same period, often in the same year, of life. Attention is called to the fact that in some cases the first symptoms may be noted in the hands or even in all four extremities at the same time, although in the majority of cases the lower extremities are involved first. The signs and symptoms of the disease are adequately described and illustrated by photographs of patients, and there is an interesting chapter on the association of peroneal atrophy with other inherited defects. A brief chapter on the pathology of the condition adequately sums up all that is at present known of this subject. Bell states that consideration of a number of family studies indicates that peroneal atrophy is definitely inherited, in different families, as a dominant, a sex-linked recessive, and possibly also as a simple recessive, although some of the pedigrees are admittedly difficult of interpretation. Statistical data and various correlations are well presented in tabular form, and a number of interesting pedigree plates of affected families gathered from the literature and from personal observation are appended to the monograph, together with a satisfactory description of each family. An interesting point brought out in this study is the apparent linkage of peroneal atrophy with inability to taste phenyl thiocarbamide in one family. Unfortunately, no definite conclusion could be reached; but further investigation along similar lines is desirable, since clear demonstration of the linkage of a disease of this sort, which is not present at birth, with some congenital anomaly, may supply a valuable aid to prediction concerning the liability to manifest the inherent hereditary defect.

Out of the Night: A Biologist's View of the Future. By H. J. Muller, Professor of Zoölogy, University of Texas. Cloth. Price, $1.50. Pp. 127. New York: Vanguard Press, 1935.

The author of this small but potent book is one of the world's leading geneticists. He has been on leave of absence from the University of Texas for several years and has been senior geneticist at the Institute of Genetics, Moscow. The title of the book carries the implication that humanity is emerging from the darkness of ignorance as to the mechanics of human evolution and is now in a position to direct the course of its own future evolution. Muller attempts to predict the future of man under a managed program of progressive eugenics. He regards mere negative eugenics (the segregation or sterilization of the unfit) as unlikely, of itself, to advance the status of the race. The only real advance in human evolution is one that would result from breeding extensively from the best human types. There is no good reason why a very exceptional male could not furnish enough male gametes to fertilize thousands of human ova. There is also no technical difficulty about artificially inseminating ova. In reply to the criticism that it would be difficult to decide which are the most superior men while they are still young and sexually active, it is advised that the seed be kept alive for twenty-five years while the evaluation of a man's genetic worth is being made. Selection should be based, apart from physical vigor and well being, on two essential qualities, social sense (comradeliness) and intelligence. Certain secondary difficulties with this proposal suggest themselves. What about love and marriage? Muller would separate sexual love from reproduction by the practice of birth control methods. He also regards his plan totally unfeasible in a democracy such as the United States, for the popular judgment as to the eugenically superior men would doubtless favor a race of Billy Sundays, Babe Ruths, Valentinos, Jack Dempseys, or even Al Capones. Only in a fully integrated socialistic country could progressive eugenics be practiced, for, where environmental conditions are the same for all, genetic differences would reveal themselves for what they really are. Muller's ideas as to the possibilities of progressive eugenics in so short a time as a paltry century or two is given in his own words: "It would be possible for the majority of the population to become of the innate quality of such men as Lenin, Newton, Leonardo, Pasteur, Beethoven, Omar Khayyam, Pushkin, Sun Yat Sen, Marx . . . or even to possess their varied faculties combined." "How many women," he says, in another connection, "in an enlightened community devoid of superstition, taboos and sex slavery, would be eager and proud to bear and rear a child of Lenin or of Darwin!" This book is extremely well written. It is the vision of a geneticist, convinced that what has been found true for the fruit fly is surely applicable to man. In other words, the book is an excellent exposition of the extreme hereditarian doctrine as held by most modern geneticists.

Histochimie animale: Méthodes et problèmes. Par L. Lison, assistant à l'Université de Bruxelles. Avec une préface de M. Pol Gérard. Collection des actualités biologiques, sous la direction de M. Robert Lévy. Paper. Price, 50 francs. Pp. 320. Paris: Gauthier-Villars, 1936.

This is a critical and lucid exposition of the chemistry of tissues as studied in microscopic sections. The first part takes up the general methods and limitations. In general, substances in solution in cells cannot be localized because they diffuse during analysis, and substances not in solution may be extracted by preliminary treatment. Therefore the most general method is freezing the tissue. After it is once frozen there are two main methods of treatment: It may be dried without thawing. If paraffin-soluble substances are not to be analyzed, it may be impregnated with paraffin in the dry state and cut into sections and mounted on slides, and if only inorganic substances are to be studied the slide may be heated in a muffle furnace so as to ash the section and then the ash analyzed by various methods. Another method is to cut frozen sections and place them on slides before they thaw. Except when the tissue is dried, some form of fixation is often necessary; but fixation has to be adapted to the later process. In general the use of aniline dyes cannot be considered chemistry, and heavy metals give reactions that are specific only under exact conditions. The sensitivity in usually one hundred million million times that of ordinary chemical sensitivity and limitations are given in fractions of a microgram. (Results are qualitative, not quantitative). The chemical analysis of sections includes: 1. Solubility; but it should be remembered that mixtures may have solubilities different than the pure substances. 2. Microspectroscopy, and this may be done on the native substance with either visible or ultraviolet rays or by means of a high frequency unipolar spark spectrum immediately above the section. In this case the limitation of area is relatively large but less than 1 mm. in diameter. 3. Microfluoroscopy. (Substances emit light of a longer wavelength than the incident light. The usual incident wavelength is 3660 angstroms). 4. Polarized light for the study of crystals. The second part of the book enumerates the special analytic procedures for different substances, with sections on minerals, proteins, lipids, glucides, pigments, ferments and vitamins. The image of the ash of a section is called the spodogram, but iron is the only colored element that is of great enough concentration to be detected by the microscope without reagents. All other elements must be studied by means of microreactions and the use of microscopic drops of reagents. Elements can be localized in cells only when combined with the protein skeleton and then are in a condition called "masqued" and must be liberated by micro-incineration or other methods. The proteins are mostly localized, and color reactions for amino acids can be used in the microscope. Also they may be digested. There are ways of distinguishing scleroproteins. Substances with a benzene ring are especially studied and the chromaffin reaction for epinephrine is explained. The argentaffin reaction is shown to be of histologic importance but not always of chemical specificity. As it is used to diagnose rickets, it is not chemically specific. Nucleoproteins may be studied with the murexide and other reactions. Fats may often be fixed with heavy metal oxides, and a table of analysis of lipids is given. Fixed lipids are considered lipoprotein compounds.

Glucides include glycogen, and the chromotrope reaction for the scleroproteins containing sulfuric acid. Pigments may be studied by their own color, and the derivatives of hemoglobin are studied with chemical reactions, the porphyrins being studied by fluorescence. Of the ferments, the peroxidases and phenolases (oxidases) are detected but their biologic significance is doubted. Melanin formation is considered as due to the tyrosinase and dopa oxidase. Of the vitamins, only vitamin C is studied. It reduces silver nitrate instantly, whereas epinephrine does so only slowly.

Delafield and Prudden's Text-Book of Pathology. Revised by Francis Carter Wood, M.D., Director of the Pathological Department, St. Luke's Hospital, New York. Sixteenth edition. Fabrikoid. Price, $10. Pp. 1406, with 861 illustrations. Baltimore: William Wood & Company, 1936.

This book was first published in 1885 and at that time it was the first important textbook of pathology in America. The fact that the book has passed through sixteen editions shows the popularity of the work during half a century. The present edition is handsomely bound and contains a wealth of pathologic material useful to pathologists, medical students and physicians. Criticism of such a book is difficult; certain suggestions appear indicated, however, despite the glories of the past. Dr. Wood says in the preface "Many requests have been received by the editor to render the book more modern, but unfortunately modernity is largely only a changing of the labels on the specimen bottles." This attitude allows no place for the existence of ideas, and pathology and its concepts have developed considerably since 1885. As a matter of fact, the best chapter in the book is the one by Deery on the nervous system, and it is good because it is modern. The editor remarks that "the book has already reached the limit for comfortable handling in attempting to cover incompletely the subject with which it deals and any increase in size is therefore prohibited." Why not eliminate a lot of the obsolete historical material and allow space for more important pathologic material? Why carry the pictures of cell division on pages 82-85 in this day of sound biologic training of medical students? Why retain the old "side-chain" pictures of Ehrlich and the old pictures of bacteria with the obsolete bacteriologic descriptions accompanying? Modern students must be annoyed by such antiquated material as, for example, figure 107, showing a sterilized cotton swab in a sterilized culture tube. Why discuss the incidence of cases of peptic ulcer with a reference of 1885? Many pages could be saved by elimination of this obsolete material. Furthermore, many old "labels" should be changed. The discussion on yellow fever refers to Leptospira icteroides as the cause and makes no mention of the enormous amount of work on the virus relationship. The use of congo red in association with amyloid disease is not mentioned. Many other objections might be cited, but perhaps enough has been said to indicate that the book needs real revision rather than rebinding. There is too much looking backward with the retention of material which really belongs in a history of pathology. Ideas still remain the important features of pathology.

Le diabète sucré: Questions controversées de clinique et de pathogénie. Par P. Mauriac et al. Leçons professées à l'Hôpital Saint-André de Bordeaux (Service du Professeur P. Mauriac). Paper. Price, 32 francs. Pp. 213. Paris: Masson & Cie, 1935.

This is an interesting volume by several authors dealing chiefly with the controversial problems in the field of diabetes. The hepatomegalies of infancy and the metabolism of carbohydrates are taken up in the first chapter, together with the differential diagnosis from the von Gierke disease in its primary disturbance of carbohydrate metabolism. In these there is an enlargement of the liver without splenic enlargement, which liver enlargement the authors consider one of pluriglandular type, chronic in nature and allowing a long survival. Diabetic comas without acetonuria are taken up next. These are seen exceptionally. The considerations in this group are largely of a theoretical nature. The reaction toward insulin in the juvenile group of patients with diabetes is taken up next: the insulin resistant and the insulin sensitive. These two groups are thought to be radically different basically. It is possible that there are two mechanisms at play. In the insulin sensitive cases the author considers that it is not merely the insulogenic function alone but rather a difficulty of a pluriglandular nature, the equilibrium between the glycoregulatory mechanisms being disturbed. This could be caused by a disturbance of the vagus, which affects the secretion of insulin, or of the splanchnic, which affects the secretion of epinephrine, or by dysfunction of the pituitary, which has to do with the regulation of the blood sugar. The intermittent type of diabetes is taken up next, which the authors consider chiefly as of endocrine, pluriglandular type. Nervous complications of diabetes are illustrated by case histories. The authors consider these as expressing the duality of diabetes and being due to many other factors. The eye complications, according to the author's view, come not from the diabetes itself, the underlying factor being nephritic. The treatment of this condition as well as diabetes is in order. The chapter on examination, treatment during illness and the follow up of the cases is discussed along general lines. The individualization is emphasized. The chapter on insulin by Professor Aubertin is discussed at great length historically and physiologically. The question of blood sugar and its behavior in various types of individuals is considered in the last chapter. The authors show the basic differences in the pyknotic, the athletic and the leptosomic types. In the pyknotic the curve rises considerably, lasts for a time and descends gradually; in the athletic type the fall of the curve is quicker; in the leptosomic type the curve is less elevated than in the preceding and its descent is more rapid. On the whole this volume covers the less known and usually considered phases of the diabetic problem as dealt with in ordinary publications on diabetes and will be a great help to students. It emphasizes the pluriglandular factors.

The True Physician: The Modern "Doctor of the Old School." By Wingate M. Johnson, M.D. Cloth. Price, $1.75. P. 137. New York: Macmillan Company, 1936.

Dr. Wingate M. Johnson is one of the most popular writers in our profession. He has the fortunate faculty of being able to interpret the problems of medicine to the physician and to the layman as well. He has had a long and successful experience in practice, and with this background he writes this book for young physicians and undertakes to give them "some fatherly advice on what their conduct should be during the early days of practice." The book is comprehensive. Its advice and suggestions cover the subject in minute detail, from office equipment, dress and manners and social habits to habits of work and study, marriage and religion. He does not hesitate to offer suggestions about the banalities of professional life, which are so important and which are likely to be thought beneath consideration. His topic is really the practical factors of medical success and the advice which he gives is good. It is given from the standpoint of worldly wisdom, but it is genuine and frank and stimulating. Dr. Johnson has that unusual sort of personality which combines practical common sense with idealism, and these qualities show through the book. It has many useful suggestions for young physicians and not a few for the older ones.

Clinical Diagnosis of Diseases of the Mouth: A Guide for Students and Practitioners of Dentistry and Medicine. By Louis V. Hayes, A.B., D.D.S., Associate Professor of Oral Surgery and Lecturer on Diseases of the Mouth, New York University College of Dentistry. With an introduction by Leo Winter, D.D.S., M.D., Sc.D., Professor of Oral Surgery, New York University College of Dentistry. Cloth. Price, $7.50. Pp. 461, with 365 illustrations. Brooklyn: Dental Items of Interest Publishing Company, Inc.; London: Henry Kimpton's Medical Publishing House, 1935.

This book is designed "to serve students and practitioners of dentistry and medicine as a practical aid in their special and common endeavors respectively to prevent and cure diseases of the mouth, through the development of skill in oral diagnosis." In the introductory chapters there is appropriate emphasis of the close relation between oral and general pathologic changes which dictates a very careful appraisement of both local and general systemic observations. Significant items for consideration and record in examination are carefully outlined. These chapters are followed by discussion of a comprehensive list of diseases that contribute oral lesions. Objective, subjective and laboratory elements in diagnosis are considered, with frequent illustration of gross and microscopic tissue changes. Each entity is discussed under the headings of definition, etiology, symptomatology and treatment. There is perhaps some weakness with respect to differential diagnosis. Comment under the

sections devoted to treatment is terse and practical, which adds to the clinical value of the book but should be considered as a suggestion or preface to further investigation by the student or practitioner rather than as a basis for therapy. This is undoubtedly why the author did not include the subject in his title. The arrangement of material is explained in the final chapter, where it is stated that the grouping of lesions and diseases of the mouth was planned particularly for teaching purposes, beginning with the more common conditions and progressing to those presenting greater difficulty in diagnosis. This has resulted in some confusion, as neither purely topical nor strictly pathologic criteria are maintained. It offers certain advantages as a textbook, provided the course of study is planned with the grouping in mind. Where the topical arrangement is followed the practitioner will find that it facilitates reference, as for example in the chapters "Cheek Lesions" and "Lesions of the Palate." There are inconsistencies, however, as exemplified by placing hemiatrophy of the face under "swelling of the face," osteomyelitis under "oral fractures" and supernumerary, impacted and fused teeth under "cysts of the jaws." There are seventy-nine pages of bibliography grouped with respect to the chapter titles and subdivided with regard to book and periodical literature. In this respect as well as in the listing of a summary of the significant features in the disease entities discussed, the text should be of practical value.

A Guide to Human Parasitology for Medical Practitioners. By D. B. Blacklock, M.D., D.P.H., D.T.M., Professor of Tropical Hygiene, Liverpool School of Tropical Medicine, the University of Liverpool, and T. Southwell, D.Sc., Ph.D., A.R.C.Sc., Walter Myers Lecturer in Parasitology, School of Tropical Medicine, The University, Liverpool. Second edition. Cloth. Price, $4. Pp. 259, with 124 illustrations. Baltimore: William Wood & Company, 1935.

The second edition of this primer is in itself an index of the success of the original volume, which appeared in 1931. The guide is a brief but comprehensive outline covering the general field of medical parasitology, the spirochetes, the human protozoa and helminths and the problem of myiasis. In addition there are short chapters on the microscope, the technic for diagnosis, a list of necessary reagents and apparatus and a list (entirely too short) of the more important comprehensive textbooks and manuals on the subject. Likewise there are tables listing the geographic distribution of the human helminths, the sources of infection for several of the parasites, intermediate stages and hosts of the organisms, and a summary diagnostic table. One page contains a pictorial representation of the eggs of helminths and sixteen pages are devoted to diagrammatic representations of the life cycles of the more important animal parasites. For each important infection the geographic distribution, habitat in the human body, morphology and life cycle of the etiologic agent, pathogenicity and diagnosis are briefly outlined. Symptomatology, treatment and prevention are unfortunately not considered and this constitutes the only major criticism of this concise volume. In a future edition less space might well be given to tables, the chapter on the microscope omitted, and some space provided for the applied aspects of the subject, which are all important for "medical practitioners." The terminology is modern except for Dibothriocephalus latus, which is used instead of the approved designation Diphyllobothrium latum. The information included has been brought down to the date of publication. The illustrations, including two colored plates, are clean cut and well chosen, and the technical and typographic errors are very few. The volume is splendidly printed.

El dinitrofenol 1-2-4, estimulante del metabolismo y sus aplicaciones clinicas. Tesis de Efren Carlos del Pozo. Universidad Nacional de México, Facultad de medicina. Paper. Pp. 203. Mexico, D. F.: A. Mijares y Hno. Impresores, 1935.

This doctorate thesis contains the most complete and critical survey of the voluminous literature on dinitrophenol that has yet appeared. The author reviews the history of the industrial use of the compound and related dyes, and its toxicologic importance during the war. Then he describes the pharmacologic studies of it in the United States and France and from these develops the ideas of the possible clinical uses of the drug. The indications, contraindications and methods of administration are treated in detail, summarizing the entire published work in these topics. He gives his personal results in thirty-two cases of obesity, of which thirty were satisfactorily treated with this drug. An average loss of weight of 458 Gm. a week was secured on doses of from one to four capsules of 0.1 Gm. daily. The only side actions observed were two cases of pruritus, there being no leukopenia, cataracts or other serious sequelae in this series. The author reviews the cases of poisoning reported in the literature and points out that in practically every such case either the dosage taken was excessive or it was increased too rapidly, or there were other contributory conditions more important probably than the dinitrophenol. His critical evaluation of the published reports and his own experiences permit him to conclude that, in agreement with Tainter and his colleagues, he believes dinitrophenol to be a powerful and effective remedy for use against various forms of obesity, and especially those cases in which simple, less drastic measures are ineffective.

The Cranial Muscles of Vertebrates. By F. H. Edgeworth, M.D., M.A., D.Sc. Cloth. Price, $30; £5 5s. Pp. 493, with 841 illustrations. New York: Macmillan Company; London: Cambridge University Press, 1935.

This book is a painstaking, scholarly and exhaustive study of one phase of animal evolution. It presents the work done by the author over a period of many years and it includes the similar work of the last two centuries on cranial muscles and the lower neurons that innervate them. It covers all the vertebrate phyla and deals with both the structure of the adult and the developmental history. It throws light on the real character of these structures and on their phylogenic history. It is necessarily a large book. The illustrations cover 193 pages and are systematically arranged from the lowest vertebrates to man. It is a scholarly work covering a difficult field. The infinite mass of material representing the tentative experiments of nature contains the story of the evolutionary origin of head muscles. But to read that story is so difficult that few have tried. Few could see the homologies of the muscles and nerves concerned, and few could have had the insight and patience to select from the myriad names those which express true homologies. All this has been done, but it is not surprising that the author has found a table of synonyms necessary to enable readers to profit from the order which he has introduced into the chaotic mass of names. Some of the conclusions are interesting. "In some unknown way the growing organism appears to foresee future needs and sets to work with such material as it has to develop the necessary structures along the lines followed by its ancestors. . . . Animals are psychological units characterized by memory and purpose, striving after ends in view—this psychological factor is of great importance from the very first. . . . This immaterial, non-spatial teleological factor, the mind, can initiate and inhibit physico-chemical processes. . . . Life development and evolution are primarily due to this power." Whether biologists agree with these views or not, they will be a unit in their gratitude to Dr. Edgeworth for setting in order and permitting some understanding of an intricate mass of biologic facts.

An Outline for Students on Diseases of Nose, Throat and Ear. By Hugh Gibson Beatty, Ph.C., M.D., Professor and Chairman, Department of Oto-Laryngology, College of Medicine, The Ohio State University. Lectures on Bronchoscopy and Esophagoscopy, Harelip and Cleft Palate, and Postoperative Care of Surgical Cases. Boards. Price, $3. Pp. 94, with illustrations. Columbus: The Ohio State University, 1936.

This outline is what it claims to be: a guide for students. In brief form, with short sentences and phrases, it is an excellent aid to the individual taking the required courses in ear, nose and throat. There are a number of good illustrations of the anatomy of the various regions discussed. Within its limitations, this work can be highly recommended.

Neurologie. Par R. Monier-Vinard, médecin de l'Hôpital Ambroise-Paré. Collection des initiations médicales, publiée sous la direction du Dr. A. Sézary. Paper. Price, 22 francs. Pp. 222. Paris: Masson & Cie, 1935.

Ths is one of a series of short volumes, "Collections des initiations médicales," published under the direction of Dr. Sézary. It is an excellent introduction to clinical neurology, giving directions for the examination of patients, description and explanation of symptoms and signs, and description of the chief syndromes. Individual diseases are not taken up. It is written in a delightfully clear, concise and logical French style.

Miscellany

STEPHEN J. MAHER OF CONNECTICUT

A Record of Enthusiasm Beyond Judgment in the Treatment of Tuberculosis and Asthma

In November 1933, newspaper headlines again shrieked a new discovery for killing tubercle bacilli in vitro. Dr. Stephen J. Maher, in an address before a group of Connecticut physicians at the Laurel Heights Sanatorium, had been the source of these reports. Thus the New York *Herald Tribune* headlined its item "New Path to Tuberculosis Cure Is Announced by World Expert"; the New York *Times* said "Tubercular Germ Killed by Bacteria Bred by Dr. Maher"; the Chicago *Tribune* "Finds a Serum That Destroys Phthisis Germ"; the Milwaukee *News*, "Tuberculosis Cure Believed Found." Many other similar reports appeared, some expressing doubt as to the conclusions drawn from the work reported. Then the furor and the tumult died until May 1935, when a new batch of newspaper articles appeared. This time it was a cure for asthma developed by Dr. Maher. In the New York *Times* the headlines read "Physician Reports Cure for Asthma: Dr. S. J. Maher Asserts Dead Progeny of Avian Tubercle Bacillus Has Stopped Disease—Offers It to Any Doctor—Tells Norwich Parley It Aided Epilepsy Cases—Academy Awaits His Proof." The *Drug Trade News* for May 27, 1935, stated that representatives of two large New York drug houses had offered Dr. Stephen J. Maher of New Haven, chairman of the Connecticut Tuberculosis Commission, $50,000 if he would patent and sell to them his process for making the bacterin obtained from the dead "progeny of the avian tubercle bacillus" with which Dr. Maher stated that he had cured hundreds of cases of asthma. He replied, according to the report,

> I could use advantageously $50,000 in my laboratory work, but I have decided that the wiser way will be to tell the world what I now tell you about the composition of the bacterin, the method of preparing it, and the results of using it.

In March 1935 an article was published under Dr. Maher's name in the *American Review of Tuberculosis* entitled "The Progeny of the Tubercle Bacillus." In brief, this article stated that he had been 100 per cent successful in transmuting six strains of tubercle bacilli into cocci and diplococci which in many ways resembled the pneumococcus. The resultant cocci and diplococci multiplied rapidly and produced an acid which was harmless to themselves but usually destructive to the remaining tubercle bacilli. "The treasured secrets" of his work were communicated to three physicians, who, according to newspaper reports, also succeeded in breaking down strains of tubercle bacilli into cocci and diplococci. He stated at the end of his communication that he had not yet secured any convincing evidence from animal experiments that these cocci and diplococci had any preventive or curative effect on tuberculosis in guinea-pigs or rabbits. There was abundant evidence, he stated, that these cocci and diplococci, whether derived from avian, bovine or very pathogenic human tubercle bacilli, produce no harmful effect when injected into guinea-pigs or rabbits.

Up to this time, no report has appeared in a scientific journal from Dr. Maher embodying the work leading up to the asthma cure. The only available literature on this subject is a mimeographed report of a paper presented before a state tuberculosis conference at the Sanatorium Uncas-on-Thames, Norwich, Conn., May 16, 1935. This was entitled "The Scientific and Clinical Importance of the Progeny of the Tubercle Bacillus."

The treatment for asthma apparently originated as follows: A flask of glycerin broth culture of a non-acid-fast avian tubercle bacillus was put aside at room temperature for a week. When examined at the end of this period, the non-acid-fast bacilli had disappeared and had been replaced by "small yeastoid masses" of acid-fast coccoids and short bacilli in fields of non-acid-fast cocci and diplococci. "For the sake of brevity," he says, "I named the content of this flask 'A Y,' indicating Avian Yeastoids." All the subcultures from this flask had the same microscopic appearance, and none were found harmful when injected either alive or heat killed into guinea-pigs or rabbits. He prepared a "bacterin" from a glycerin broth culture of this A Y for use in some of his "sickest private tuberculosis patients." Most of the patients were little affected, but a small proportion improved in every way. The most striking improvements, he believed, occurred in those patients whose tuberculosis was complicated with symptoms of bronchial asthma. He has therefore in recent years used A Y in the treatment of asthma only. "For asthma of all kinds it is the most efficient treatment of which I have knowledge. It has cured where all kinds of injections have failed. It has cured in a few days scores of cases of asthma of twenty years' duration. It has cured *in one day* [italics ours] cases of asthma in children which the most famous asthma specialists in Boston and New York had pronounced incurable. It cures promptly asthma caused by hay fever, so-called 'horse asthma,' 'cat asthma,' 'dust asthma.'" He has never administered A Y by hypodermic or intravenous injection. There follow in the mimeographed report referred to a considerable number of case reports. He states that he has also used A Y successfully in the treatment of epilepsy, chorea and dementia praecox.

The public announcements already described produced a tremendous number of inquiries to medical societies and apparently to Dr. Maher direct. The reply made to the inquiries to him by patients was as follows:

> Dr. Maher makes no claim that the bacterin he uses in his own practice will cure every case of tuberculosis. However, if the physician under whose care you now are will write to Dr. Maher describing briefly your case and indicating a desire to use the bacterin, agreeing to keep Dr. Maher informed as to your progress, Dr. Maher will forward to your physician a small amount of the bacterin for your use.
>
> SECRETARY TO DR. MAHER.

This apparently agrees with the experience of one patient who wrote directly to Dr. Maher in response to the newspaper publicity of the fall of 1933. This patient was unable to convince her physician that she should have the oral bacterin, but she was able to persuade a retired physician to write to Dr. Maher, asking for the preparation. His reply to this patient was:

> I was very much pleased today to receive a letter from Dr. ——— of ———, asking me to send the bacterin to you and promising to supervise its administration and to keep me informed as to your progress. Therefore I am sending four bottles of the bacterin by today's mail. I enclose herewith the directions for taking the medicine. Keep the little brown bottles in a dark place, a bureau drawer for instance. I expect that your gentle persistence and your faith will be rewarded by a prompt cure. Kindly notify Dr. ——— when the little box arrives.

This patient reported that she did not pay for the medicine. According to her report, she had her first chest roentgenogram about four months after she had started taking the medicine, which showed, she stated, a normal right lung but cavities in the left lung. She stated that her sputum had never been examined and that she coughed a great deal and had a midday rise in temperature. She was apparently not being examined by a physician and stated that her only contact with a physician was in asking him to notify Dr. Maher when her supply of medicine was exhausted.

The treatment of asthma with A Y also resulted in a large number of inquiries by laymen and physicians apparently both direct to Dr. Maher and to medical societies. In one available response to the direct inquiry of a patient the following was sent: "Dr. Maher will send the medicine to your physician, provided that he writes to Dr. Maher, asking for the medicine, and giving the history of your case and promising to keep Dr. Maher informed as to the progress of your case. Dr. Maher's fee for sufficient medicine for four weeks' supply is ten dollars," signed by the "Secretary to Dr. Maher." It is evident, therefore, that while apparently no fee was charged for the material used in tuberculosis, a fee was charged at least part of the time when the remedy was employed in asthma.

Dr. Stephen John Maher was born in New Haven, Conn., in 1860 and was graduated by Yale University School of Medicine in 1887. He has been for many years a Fellow of the American Medical Association, specializing in tuberculosis, and he holds membership in the Society of American Bacteriologists. Since 1911 he has been a member of the State Tuberculous Commission in Connecticut, and, since 1913, its chairman. In 1915 he was president of the New England Conference on

Tuberculosis and during the same year president of the Connecticut State Medical Association. He has also received the Laetare medal of the University of Notre Dame. Obviously the work of an individual of such standing is bound to attract national attention and, for this reason, he carries a responsibility far beyond that carried by the average man. THE JOURNAL feels, therefore, somewhat reluctant about calling attention to the fact that the remedies now being sold by Dr. Maher directly to patients, according to the evidence available, have not been standardized; the remedies are sold to patients largely by correspondence, without any indication of careful medical supervision, and at least one patient has been told that the medicine is likely to bring about prompt cure, notwithstanding the fact that such evidence as is available concerning its virtue is to say the least highly doubtful. Physicians who specialize in tuberculosis know, of course, that there is nothing new in the observation of degenerative or mutation forms of this organism. There have been innumerable previous descriptions of microscopic forms which in no way resembled the original strain. Thus the enthusiasm with which newspapers greeted the announcements by Dr. Maher are hardly justified by the value of the observations.

Tuberculosis and asthma are both conditions of great seriousness in which the evaluation of new remedies has always been difficult. Certainly a scientific physician is not justified in marketing directly to patients a preparation of uncertain standing, without even any indication from the physician of the patient as to the nature of the disease or the willingness of the physician to have the remedy administered.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Health Insurance: Corporate Practice of Medicine.—The insurance commissioner of California refused to permit the Pacific Employers Insurance Company to write "A Medical Service Policy," by which it proposed to pay, not exceeding a specified amount per annum, for necessary medical, surgical, dental and hospital treatment in event an assured became sick or injured. Under the terms of the proposed policy, however, all services were to be rendered by physicians, dentists and hospitals designated by the insurance company. The company instituted mandamus proceedings to compel the commissioner to approve the policy, and the trial court directed a writ of mandate to issue. The commissioner then appealed to the district court of appeal, first district, division 2, California.

Neither a corporation, said the district court of appeal, nor any other unlicensed person or entity may engage, directly or indirectly, in the practice of law, medicine or dentistry. These professions are not open to commercial exploitation. It is against public policy to permit a "middleman" to intervene, for profit, in establishing the professional relationships between the members of the professions and the members of the public. Taking the policy by its four corners, said the court, and considering all of its provisions, the conclusion is inescapable that it is basically and primarily an agreement by the insurance company, in consideration of the premium paid by the assured, to furnish the designated professional services through its appointed staff consisting of its medical director, its designated physicians and its designated specialists. It necessarily follows that issuance of such a policy would result in the insurance company's engaging in the unlawful practice of at least two of the professions, medicine and dentistry. The policy does not constitute a contract of indemnity between the insurer and the assured. It is more than a mere contract of indemnity. The company's own designation of the policy as a "Medical Service Policy," continued the court, more nearly describes the true nature of the agreement. Essentially, it is an agreement by the company to furnish medical services and other professional services through its own appointed staff of professional men rather than an agreement to indemnify the assured against indebtedness incurred for services rendered by professional men of his own choosing. An examination of the various provisions of the policy, in the opinion of the court, fully sustained these conclusions. Throughout the "Medical Service Policy" it is specified that the assured is entitled to various professional services, including medical and dental services, under the terms and conditions set forth. One of the main headings of the policy reads "Physicians and Surgeons, Hospital and Other Services Provided." It is provided that the company will appoint a medical director, designated physicians and designated specialists "to render services in accordance with the provisions" of the policy, and that "The Insured is entitled to the Medical Service herein specified only when under the exclusive care and supervision of the Medical Director and/or designated physician and/or designated specialist." It is provided that if "The Insured places himself under the care of any person" other than those appointed by the company, the rights of all further benefits under this policy shall forthwith terminate. These and other provisions of the policy convinced the court that the agreement was one by the company to furnish all the services mentioned through its own appointees.

It is a matter of common knowledge, said the court, that the general subject of health insurance has provoked much discussion in recent years. The court, however, felt disinclined to discuss this question, pointing out that if the established rules are to be changed or modified such change or modification must be made by the legislature rather than the courts.

The judgment of the trial court, directing the insurance commissioner to approve the policy, was therefore reversed.—*Pacific Employers Insurance Company v. Carpenter (Calif.), 52 P. (2d) 992.*

Compensation of Physicians: Liability of Employer for Medical Services Rendered Employee.—The manager of a branch store operated by the defendant corporation became seriously ill. He was without funds to obtain medical aid and the vice-president and general manager of the corporation requested Dr. Solomon Cameron to render the necessary treatment and assured him that the corporation would pay the bill. When the physician's statement was rendered, however, the corporation denied liability and the physician brought suit. The judgment of the circuit court for the physician was affirmed by the St. Louis court of appeals, and the corporation sought a reversal of that judgment in the Supreme Court of Missouri.

The corporation contended that its vice-president and general manager had no authority to obligate it to pay for the services rendered by the physician. The Supreme Court, however, disagreed with this contention, and in holding that the vice-president and general manager had implied authority to act, expressed itself in agreement with the reasoning of the court of appeals, as follows:

> We think the circumstances shown in the instant case afford ample grounds for presuming that Dorband, as general manager of defendant, had authority to charge defendant with the employment of a physician to treat the manager of its St. Louis branch, who was suddenly stricken and became desperately ill, among strangers, without adequate funds for the employment of necessary medical attention. Callahan [the manager of the St. Louis branch] held a responsible position of no little importance in the conduct and operation of defendant's business. Presumably he was specially trained for this position, and was possessed of a knowledge of defendant's business in St. Louis not possessed by any other employee. So that defendant had a direct pecuniary interest in his speedy recovery and his early return to his work.

The Supreme Court, therefore, in effect, affirmed the judgment for the physician.—*State ex rel. Electric Household Stores, Inc. v. Hostetter (Mo.), 89 S. W. (2d) 28.*

Society Proceedings

COMING MEETINGS

Montana, Medical Association of, Billings, July 8-9. Dr. E. G. Balsam, 208½ North Broadway, Billings, Secretary.

National Medical Association, Philadelphia, Aug. 16-22. Dr. W. Harry Barnes, 1315 North 15th St., Philadelphia, Acting Secretary.

Pacific Northwest Medical Association, Portland, Ore., July 8-11. Dr. C. W. Countryman, 407 Riverside Avenue, Spokane, Wash., Executive Secretary.

Wyoming State Medical Society, Cody, Aug. 24-25. Dr. Earl Whedon, 50 North Main Street, Sheridan, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

26: 321-454 (April) 1936

District Health Administration in Large Cities. J. L. Rice and Margaret W. Barnard, New York.—p. 321.

Health Security. T. Parran Jr., Albany, N. Y.—p. 329.

Authoritative Standards and Association Policy. W. H. Frost, Baltimore.—p. 336.

Optimal Temperature of Incubation for Standard Methods of Milk Analysis as Influenced by the Medium. M. W. Yale and C. S. Pederson, Geneva, N. Y.—p. 344.

Further Studies of Composition of Mediums for Bacteriologic Analysis of Milk. C. S. Bowers and G. J. Hucker, Geneva, N. Y.—p. 350.

Evaluation of Certain Mediums for Detection of Colon Organisms in Milk. C. N. Stark and L. R. Curtis, Ithaca, N. Y.—p. 354.

Prevention of Venereal Diseases in Sweden. E. Rietz, Stockholm, Sweden.—p. 357.

Shellfish Report from Standpoint of the Sanitary Engineer. L. M. Fisher, Washington, D. C.—p. 364.

Federal Control of Spray Residues on Fruits and Vegetables. W. S. Frisbie, Washington, D. C.—p. 369.

State Control of Spray Residues. W. C. Geagley, Lansing, Mich.—p. 374.

Pharmacology of Small Quantities of Lead and Arsenic. A. J. Carlson, Chicago.—p. 377.

Spray Residues: From the Point of View of the State Health Officer. W. F. Cogswell and J. W. Forbes, Helena, Mont.—p. 379.

Poisonous Substances in Food, Particularly Spray Residue on Fruits and Vegetables: From the Point of View of the City Health Officer. J. C. Geiger, G. H. Becker and A. B. Crowley, San Francisco.—p. 382.

Practical Application of an Industrial Health Appraisal Form. L. D. Bristol, New York.—p. 390.

*Typhoid Carriers: Study of Their Disease Producing Potentialities Over a Series of Years as Indicated by Study of Cases. G. W. Anderson, Angeline D. Hamblen and Helen M. Smith, Boston.—p. 396.

Escherichia Coli as an Indicator of Fecal Pollution in Oysters and Oyster Waters. C. A. Perry and M. Bayliss, Baltimore.—p. 406.

Laboratory Control of Water Purification Plants. H. E. Jordan, Indianapolis.—p. 412.

Typhoid Carriers.—Anderson and his associates calculated the typhoid morbidity in Massachusetts as a constant function of the death rate. It has been assumed that throughout the period under study (1875 to 1934) typhoid has consistently had a 10 per cent case fatality rate, so that the number of cases in any year has been ten times the number of deaths. That such an assumption is justified is shown by the unchanged case fatality rates in the larger hospitals, coupled with the commonly accepted fact that, aside from the dietary regimen, there has been no noteworthy advance in typhoid therapy for several generations. The use of death figures has eliminated any error due to variations in adequacy of case reporting, the death returns in Massachusetts having been reasonably complete throughout the period in question. Using this method for calculating morbidity, it can then be assumed that the number of survivors from typhoid in any year was nine times the number of reported deaths. It was further assumed that 2 per cent of those who recovered from typhoid continued as carriers the duration of their lives. Consequently the number of carriers produced in any single year has been calculated as 2 per cent of the survivors in that year. It is thus possible to estimate theoretically the number of carriers produced in any period of time. An approximate figure of the number of carriers in a given population at a given time is obtained by determining the average age of typhoid patients over a period of years and knowing the average expectation of life at any age and the carrier production rate. From this the authors conclude that the number of cases of residual (carrier-borne) typhoid (exclusive of localized outbreaks) that occur in any community in any given year is not a constant function of the number of carriers in that community but is rather a function of the carriers produced in the preceding period of approximately five years. That such a deduction is correct is illustrated by a logarithmic scale showing the decline in typhoid mortality during the last sixty years. The hypothesis suggested—that the current incidence of typhoid is a function not of the total number of carriers but rather of those recently produced—means that carriers are not all of equal importance as sources of infection and that on a community basis carriers produce fewer and fewer cases as years elapse. A carrier if undiscovered will in a period of years either infect or immunize the normal immediate environment, and subsequent infections are conditioned by the introduction of susceptible new material into the carrier's environment or sphere of influence. This is then the apparent explanation for the shift in the ratio between the number of cases in any year and the number of carriers produced in the preceding periods of years. This offers a reasonable explanation for the fact that the number of cases in any year was not a constant function of the number of carriers present in the community but rather of the number of carriers produced during the preceding period of five to ten years.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

35: 429-576 (April) 1936

The Place of Radiation in Treatment of Cerebellar Medulloblastomas: Report of Twenty Cases. E. C. Cutler, M. C. Sosman and W. W. Vaughan, Boston.—p. 429.

*Chronic Pneumonia Associated with Nutritional Disturbances in Infants. H. M. Greenwald, L. Nathanson and M. Steiner, Brooklyn.—p. 454.

Concerning Some Pathophysiologic Peculiarities of Function of Vertebral Column: Mechanism of Fractures of Transverse Processes of Lumbar Vertebrae. J. M. Koudienko, Leningrad, U. S. S. R.—p. 468.

Soft Tissue Roentgenography: Anatomic, Technic and Pathologic Considerations. J. R. Carty, New York.—p. 474.

*Direct Venography in Obstructive Lesions of Veins. N. W. Barker and J. D. Camp, Rochester, Minn.—p. 485.

*Tuberculosis of Tuberosity of Ischium: Case Report. M. Kaplan, New York.—p. 490.

Osteopoikilosis: Report of Four Cases. F. B. Nather, Fort Harrison, Mont.—p. 495.

The Five Gram Radium Pack. I. I. Kaplan, New York.—p. 498.

Advantages and Disadvantages of Radium Element Pack. J. J. Duffy, New York.—p. 508.

Advantages and Disadvantages of Radium Packs. B. T. Simpson and M. C. Reinhard, Buffalo.—p. 513.

Nembutal in Treatment of Radiation Sickness. G. E. Richards and M. V. Peters, Toronto.—p. 522.

Survey of Chest Roentgenographic Technic. C. Weyl, S. R. Warren Jr. and D. B. O'Neill, Philadelphia.—p. 526.

Choice of Certain Technic Factors for Chest Roentgenography. C. Weyl, S. R. Warren Jr. and D. B. O'Neill, Philadelphia.—p. 534.

Epiphysis for Lesser Trochanter. H. Flecker, Cairns, North Queensland, Australia.—p. 540.

Epiphysis for Symphysis Pubis: Does Such Exist? H. Flecker, Cairns, North Queensland, Australia.—p. 541.

Chronic Pneumonia and Nutritional Disturbances in Infants.—Greenwald and his associates call attention to the fact that there occurs in infants a chronic, nontuberculous type of pulmonary infiltration, which is accompanied by nutritional disturbances, and emphasize the importance and necessity of routine roentgenologic or roentgenoscopic examinations of malnourished infants whose nutritional requirements are adequately fulfilled, both quantitatively and qualitatively. During the last seven years they have observed in private practice nine infants from 3 weeks to 17 months of age who had marked anorexia and did not gain in weight, yet every infant had a chronic nontuberculous pulmonary lesion. These children were observed for from three months to seven years. Roentgenologic studies showed involvement of the right upper lobe in every instance; in some infants the lower lobes and the left side also were involved. Physical signs were not always present and, when present, in some of the infants there were few signs or symptoms referable to the respiratory tract. Roentgenologic changes and clinical signs and symptoms were present for periods varying from a few months to several years. The course was benign in every instance; no deaths occurred. The etiology is

obscure. Whether the infiltration in the lungs in some of these children was the result of aspiration of fatty or oily substances producing lipoid pneumonia, it is impossible to say. Lipoid pneumonia is sometimes the cause of chronic nontuberculous lung infiltrations, but unfortunately there is no known clinical method of determining the presence of fat in the lungs. Repeated sputum examinations for the presence of fat were consistently negative in Goodwin's patients. Lung puncture might be tried, but whether consistent and sufficient information could be obtained to justify its use is questionable.

Direct Venography in Obstructive Lesions.—In using direct venography in thirty-seven cases, Barker and Camp employed diodrast as their injection medium. Injection was made in the long saphenous vein or one of its tributaries in the lower part of the leg when visualization of the upper long saphenous, upper femoral or iliac veins was desired; in a superficial vein of the outer side of the foot or posterior part of the calf when visualization of the short saphenous, popliteal or lower femoral veins was desired, and in the median basilic vein at the elbow when visualization of the axillary and subclavian veins was desired. A tourniquet or manual pressure was used to distend the vein and direct venipuncture was made with a number 21 needle attached to a Luer syringe. The tourniquet was removed before injection was begun. In veins of the lower extremity, 20 cc. of diodrast was injected and 10 cc. in veins of the upper extremity. Injection was made steadily and rapidly, from fifteen to eighteen seconds being taken for 20 cc. The roentgenogram was made just as injection was completed. For visualization of the saphenous, femoral and iliac veins 90 kilovolts (peak), 60 milliamperes, 30 inch tube-film distance and one and a half seconds for exposure were used. The tube was at an angle of 5 degrees cephalad. For examination of the axillary and subclavian veins the following factors were used: 70 kilovolts (peak), 60 milliamperes, 40 inch tube-film distance and one second exposure. It was found that, even with rapid changing of films, diodrast passed out of the veins too rapidly to secure visualization in more than one film. Of the thirty-seven cases, successful venograms were made in nineteen cases of veins in the lower extremity, seventeen of veins in the upper extremity and one of the external jugular vein. Pain was not felt in the veins during or following injection, nor did thrombosis occur after injection. Nausea developed in three cases and two of these patients vomited within two minutes after injection was completed; several others complained of "light-headedness." These reactions were transient and probably due to the rapidity of injection. Nausea and vomiting occurred only in cases in which 20 cc. of diodrast was injected and in cases of extensive venous obstruction in which there was marked slowing of the venous blood flow. Mild urticaria developed in a patient within fifteen minutes after injection; the patient later said that this had occurred previously when she had taken iodides. Normal venograms can be described as follows: In the upper extremity, the median basilic vein after its injection and the axillary and subclavian veins are clearly visualized to a point at which the subclavian passes the lower margin of the clavicle; and in the lower extremity, the long saphenous vein after its injection is well visualized to its juncture with the femoral vein, and from this point the femoral and iliac veins are more faintly seen to the beginning of the inferior vena cava. Direct venography aids in evaluation of disturbances in the rate of the venous flow of blood and in localizing and determining the extent of an obstructive lesion, and is of diagnostic aid in obscure cases. Contraindications to its use are idiosyncrasy to iodides and recent (within two weeks) acute thrombophlebitis.

Tuberculosis of Tuberosity of Ischium.—Kaplan adds a case of tuberculosis of the tuberosity of the ischium to the seven reported in the literature during the last thirty-five years. Tuberculosis of the ischium in the young is relatively easy to cure. In an adult, visceral complications are less often present. Early and radical treatment will produce a rapid and early cure. When simple curettage fails to produce cicatrization, it may be necessary to do a partial resection, subperiosteally. Rest in bed and immobilization are necessary to complete the cure.

Archives of Dermatology and Syphilology, Chicago

33: 783-950 (May) 1936

Origin of Syphilis: Evidence from Diseased Bones: Supplementary Report. H. U. Williams, Buffalo.—p. 783.
*Virus of Pemphigus and Dermatitis Herpetiformis. E. Urbach and S. Wolfram, Vienna, Austria, translated by F. R. Schmidt, Chicago.—p. 788.
Unusual Case of Keratoma Senile: "Keratosis Praecancerosa." M. Ruiter, Deventer, Netherlands.—p. 807.
*Pyoderma Gangraenosum: Deficiency Disease Complex. M. H. Cohen, York, Pa.—p. 813.
Nature and Distribution According to Age of Cutaneous Manifestations of Vitamin A Deficiency: Study of Two Hundred and Seven Cases. C. N. Frazier and C.-K. Hu, Peiping, China.—p. 825.
Lymphogranuloma Inguinale: II. Cultivation of Virus in Mice and Its Use in Preparation of Frei Antigen. A. W. Grace and Florence H. Suskind, New York.—p. 853.
Transformation of Trichophyton Gypseum into Mosaic Fungus. Eleanor Silver Dowding and H. Orr, Edmonton, Alta.—p. 865.
*Fatality Following Bismarsen Therapy. J. H. Swartz, M. M. Tolman and H. Levine, Boston.—p. 874.
Dermatitis Papillaris Capillitii and Sycosis Vulgaris with Hypovitaminosis: Report of Case. T. B. Hall, Kansas City, Mo.—p. 880.

Virus of Pemphigus and Dermatitis Herpetiformis.—Urbach and Wolfram obtained material from thirty-four patients with pemphigus and dermatitis herpetiformis in an attempt to prove the identity of these dermatoses with the group of diseases caused by an invisible virus. Animals (288) inoculated subdurally with blister fluid exhibited signs of the disease in 91.8 per cent of cases of pemphigus, 100 per cent of cases of localized pemphigus and 70 per cent of cases of dermatitis herpetiformis. The histologic changes registered in the brain substance of the experimentally infected rabbits were always those of meningo-encephalomyelitis. Animals inoculated with virus from patients with pemphigus showed the same symptoms as those into which material from patients with dermatitis herpetiformis had been introduced. Just as the course of dermatitis herpetiformis is milder in human beings, so in animals it is characterized by lesser morbidity and mortality. The symptoms point unreservedly to one and the same pathogenic agent as responsible for both pemphigus and dermatitis herpetiformis. The symptoms and histologic changes observed in passage animals correspond exactly to those occurring in animals infected directly with human virus. Since microscopic and cultural studies gave invariably negative results, it must be assumed that we are dealing with an invisible virus, necessarily filtrable, because the transfer of the infection from the human being to animals and its further passage through animals was successful with filtered material. The involvement of the central nervous system was marked in all animals infected with material obtained from patients with pemphigus in the florid stage. The picture composed by the symptoms and the histologic changes in the central nervous system closely resembles that produced in animals by the virus of herpes. Attempts to secure crossed immunity between pemphigus and herpes failed, while animals which recovered from an attack of pemphigus usually displayed an immunity to reinfection with pemphigus. The supposition that pemphigus is caused by a virus is further strengthened by the results of inoculations of animals with material obtained from the two patients at necropsy. Passage through animals was successful in both cases; the material used consisted of filtrates of normal and diseased skin, spleen and lymph nodes. By serologic tests they were able to demonstrate that the disease manifested by their animals was the same as pemphigus in human beings.

Pyoderma Gangraenosum.—Cohen feels that in his case of pyoderma gangraenosum the marked ulcerations of the skin and the intestine, the smooth, atrophic tongue, the hypochromic anemia, the long, intermittent course and the lack of any evidence of contagiousness suggest a deficiency disorder. He ascribes the fact that the patient was not cured by vitamin therapy to the destruction of the absorptive mechanism in her intestinal tract and to the complexity of the involved vitamins. He believes that cases of pyoderma gangraenosum are more common than the literature would lead one to believe, that particular attention should be given to the skin of any patient suffering from long continued diarrhea and that it is essential that a high vitamin diet, liver extract, iron and calcium be given early in the course of such a condition. The final word on the etiology of pyoderma gangraenosum and ulcerative colitis remains for the future to supply, but it is his opinion

that this condition is not of an infectious nature but is due to the lack of some protective substance or vitamin in the skin and intestinal tract.

Fatality Following Bismuth Arsphenamine Sulfonate Therapy.—Swartz and his associates cite a fatal case of fat embolism following the use of bismuth arsphenamine sulfonate in antisyphilitic therapy. At necropsy the fatty changes in the liver were not pronounced, there being only periportal lymphocytic infiltration and relatively insignificant infiltration of the liver cells of the central portion of the lobule. It was difficult to believe that these changes brought about the abrupt and severe grade of jaundice which developed. Although stones were found in the gallbladder, there was no intrinsic or extrinsic obstruction of the biliary tract. The myocardial scar seemed unlikely to account for the patient's death. The fat embolism of the lungs, on the other hand, was so widespread that it alone may be considered as adequate to explain the fatal outcome. By effectively plugging the pulmonary capillaries, the fat emboli produced what Warthin referred to as the respiratory symptom and pathologic complex of fat embolism. With general reference to the category of toxic causes of fat embolism and with special reference to the present case, there are two recently reported fatalities from fat embolism following arsenic therapy for syphilis reported by Burns and Bromberg, and Brittingham and Phinizy. It has been demonstrated that it is the arsphenamine radical common to bismuth arsphenamine sulfonate and to the other arsenic compounds which is responsible for the untoward reactions occurring during treatment. The authors therefore believe that the present case is of the same type as those reported by the foregoing investigators.

Archives of Internal Medicine, Chicago

57: 649-836 (April) 1936

*Study of Lower Lobe of Lung: Explanation of Roentgenologic Shadows. J. Levitin and H. Brunn, San Francisco.—p. 649.
*Factors Responsible for Jaundice in Syphilis, with Especial Reference to Rôle of Arsphenamines. R. V. Sager, New York.—p. 666.
Infantilism and Diabetes Mellitus: Report of Eight Cases. R. B. Gibson and W. M. Fowler, Iowa City.—p. 695.
Bence Jones Proteinuria. L. Meyler, Groningen, Netherlands.—p. 708.
Modifying Effect of Various Inorganic Salts on Diuretic Action of Salyrgan. C. B. Ethridge, D. W. Myers and M. N. Fulton, Boston.—p. 714.
Nonspecific Rôle of Pressor Substances in Plasma of Hypertensive Patients. L. Leiter, Chicago.—p. 729.
*Relative Values of Caffeine and Hypertonic Dextrose and Saline Solutions in Reducing Cerebrospinal Fluid Pressure. A. Blau, New York.—p. 749.
Lymphoblastoma Cutis: Report of Case with Autopsy. A. S. Rosenfeld and J. V. Straumfjord, Portland, Ore.—p. 758.
*Arrhenoblastoma: Special Type of Teratoma: Report of Case. J. B. McLester, Birmingham, Ala.—p. 773.
Proliferative Endophlebitis (Phlebosclerosis): Report of Case. P. M. Levin and P. C. Bucy, Chicago.—p. 787.
Diseases of the Heart: Review of Some Contributions Made During 1935. A. Graybiel and P. D. White, Boston.—p. 791.

Study of Lower Lobe of Lung.—Levitin and Brunn state that the lower lobes of the right and left lungs are divided into two distinct parts: (1) a small triangular superior division and (2) a larger inferior division. This anatomic fact has been insufficiently emphasized in the past. Each portion of the lobe has its own bronchial distribution. Embryologically, each develops from a separate anlage. A fissure separating the two parts may be observed in the developed lung. The pleural reflection in the fissure may be observed in the roentgenogram and has often been misinterpreted as a pleural adhesion. This definite anatomic structure accounts for numerous limited disease processes the localization of which has previously not been understood. In the roentgenogram the involved superior division appears to lie high in the chest or low behind the diaphragm, depending on the position of the diaphragm when the roentgenogram is made. Failure to recognize the importance of the position of the diaphragm has often led to misinterpretations. When the process appears high in the roentgenogram it is often diagnosed as central pneumonia. When it appears low, it may be mistaken for encapsulated fluid.

Jaundice in Syphilis.—Sager declares that slight transient jaundice may be encountered in cases of syphilitic cirrhosis but that neither this condition nor gumma of the liver gives the familiar picture of benign or fatal jaundice. In his records of thirty-one cases there were twelve cases of gumma of the liver, syphilitic cirrhosis or hepar lobatum; in only one instance was jaundice present, and in that case it was faint and transient. A careful search of the records of cases of tertiary syphilis of the liver with postmortem observations reported by various observers, both before and after the introduction of arsphenamine, failed to reveal in a single case a condition that will fit into the picture of acute yellow atrophy. Nor are the clinical pictures of the two diseases alike. On the other hand, lesions in cases of fatal paratherapeutic icterus are always those of acute or subacute yellow atrophy or coarse nodular cirrhosis; the familiar lesions of hepatic syphilis are uniformly absent, and spirochetes are never found, as pointed out by Ravaut and Fischer. Even if gumma or syphilitic cirrhosis should be found in association with acute yellow atrophy, the etiologic relation of the two would not thereby be proved. But the author is not aware of any case in which this association was present.

Caffeine and Dextrose for Reducing Cerebrospinal Fluid Pressure.—Blau compared the effects on the cerebrospinal fluid pressure of the intravenous administration of hypertonic dextrose (50 per cent) and sodium chloride (15 per cent) solution and a solution of caffeine with sodium benzoate (5 grains, or 0.3 Gm.) in fifty-one observations on normal persons and on patients with increased intracranial pressure. The injection of dextrose solutions was effective in reducing the cerebrospinal fluid pressure in but relatively few cases. In a few cases the injection of a dextrose solution caused an immediate prolonged rise in the pressure. The effect of caffeine was greater and was consistent, but with both the latter and the dextrose the results were transient. The injection of hypertonic sodium chloride solution, however, resulted uniformly in a definite and more persistent reduction in the cerebrospinal fluid pressure. Hypertonic solutions of sodium chloride should replace the solutions of dextrose in clinical administration for the reduction of intracranial pressure.

Arrhenoblastoma.—McLester cites a case of an ovarian tumor that falls into the group of twenty-nine previously reported cases of arrhenomastoma. The secondary sexual characteristics of the woman, originally feminine, changed materially in the course of three years to definitely masculine. After removal of the tumor the feminine characteristics returned to a partial degree, and after one year there has been no recurrence of the tumor or return of the male characteristics. The mass was ovarian in origin. The return of feminine characteristics and particularly the continued normal menstruation after the operation are indicative of a normal function of the remaining gonadal tissue. The tumor consisted, probably, of testicular tissue. There was cord formation but no attempt at the construction of tubules or acini, nor was there any spermatogenesis. The chief cells were of two types. One was suggestive of endocrine structures in general. The second type of cell was fusiform, suggestive of embryonic fibrous tissue, with some evidence of change into the former type. Columnar, mucus-producing epithelium with typical goblet cells was found in the walls of a cyst of the tumor. The tissue was entirely quiescent and was taking no part in the active proliferation shown by the actual tumor cells. This structure, since it is foreign to ovary or testis, puts the tumor into the group of teratomas. The tumor may prove to be benign. Nothing was noted to indicate the cell type from which the tumor arose. It is not unlikely that a group of fetal cells in the ovary, growing in response to an unknown stimulus, might well have been the source of the patient's tumor. Clinically the growth was identical with the arrhenoblastomas; pathologically it was highly suggestive at least of the more undifferentiated types as they have been described. This suggests that the previously reported arrhenoblastomas may have been a special type of teratoma.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

17: 193-256 (April) 1936

Effect of Carbon Arc Radiation on Blood Pressure and Cardiac Output. H. Laurens, New Orleans.—p. 199.
Fever Therapy. A. U. Desjardins, Rochester, Minn.—p. 206.
Newer Aspects of Ionization Therapy in Nasal Allergic Disorders. A. R. Hollender, Chicago.—p. 216.
Constipation as Physical Therapeutic Problem. W. S. Horn, Fort Worth, Texas.—p. 225.
Ultrashort Wave Therapy. W. H. Schmidt, Philadelphia.—p. 231.
Council on Physical Therapy: Tenth Anniversary. H. A. Carter, Chicago.—p. 235.

Arkansas Medical Society Journal, Fort Smith

32: 181-192 (May) 1936

Indications for Spinal Puncture. W. A. Jones, Fayetteville.—p. 181.
Hysteria in General Practice. F. P. Hardy, Searcy.—p. 183.

Colorado Medicine, Denver

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Subacromial Bursitis, So Called. R. M. Lee, Fort Collins.—p. 316.
*The Painful Shoulder: X-Ray Interpretation. G. A. Unfug, Pueblo.—p. 318.
*Newer Concepts in Treatment of Furunculosis. D. Prey and J. M. Foster Jr., Denver.—p. 325.
Granulopenia (Agranulocytosis): Report of Case. D. A. Vanderhoof, Colorado Springs.—p. 328.
Report on Scarlet Fever Immunization. Portia M. Lubchenco, Haxtun.—p. 333.
Torsion of Spermatic Cord. L. G. Booth, Sheridan.—p. 342.
Correlation of the Record Department with Other Departments of the Hospital. Margaret Neal, Denver.—p. 346.

Roentgen Interpretation of the Painful Shoulder.—Unfug states that painful shoulders may be due to cervical rib, arthritis of the shoulder, arthritis of the cervical spine, calcified cervical glands, acromioclavicular separation and arthritis of the acromioclavicular articulation. Cervical ribs may vary in size from an elongated transverse process of one of the lower cervical vertebrae to a separate rib several inches in length. Only 5 per cent of cervical ribs give a brachial plexus effect. The shoulder pain from arthritis of the cervical spine is difficult to explain. Some of it, however, is due to involvement of the brachial plexus. The bony exostoses, with or without narrowing of the joint space, and bone destruction visualized on the roentgenogram are well known. In shoulder pain due to calcified cervical glands the pain is believed to be due to a mechanical or inflammatory irritation of the brachial plexus. Acromioclavicular separation is not uncommon. Clinically, one is often misled by a false crepitus or grating sensation, which may be encountered in almost any normal acromioclavicular articulation. Roentgenographically, one can be misled if only the usual view of the shoulder is taken. Frequently it is necessary to make roentgenograms with the arm in two positions, abduction and adduction, and it has been found that plates made with the patient standing will frequently reveal a separation when all other methods fail. Arthritis of the acromioclavicular articulation is evidenced on the roentgenogram by mixed hypertrophic and atrophic changes and by a narrowing of the joint space. Its chief importance, from the roentgen point of view, lies in the fact that a true arthritis of the joint must be differentiated from simple hypertrophic excrescences of the acromion, which are occasionally secondary to an old injury of the supraspinatus tendon. Whenever only hypertrophic changes are visualized about this joint, a careful study should be made to exclude previous supraspinatus tendon injury. The roentgen observations most frequently encountered are: (1) calcified deposits in the supraspinatus tendon, near its insertion; (2) excrescences on or roughening of the greater tuberosity of the humerus; (3) area of increased density in the greater tuberosity at the insertion of the supraspinatus tendon (eburnation); (4) roughening of the outer edge of the greater tuberosity below the insertion of the supraspinatus tendon (bursal osteitis); (5) areas of bone absorption beneath the greater tuberosity (cavities); (6) recession of tuberosity—disuse; (7) trabecular atrophy in the greater tuberosity beneath the base of the bursa, and (8) hypertrophic changes at the edge of the acromion process.

Treatment of Furunculosis.—Prey and Foster have found an ideal method of treating furunculosis by combining the local application of contractile collodion to the furuncle and the intravenous injection of colloidal animal charcoal. The charcoal preparation that they have used comes in 3 and 5 cc. ampules. In the milder infections 3 cc. has been ample. The injection may be repeated in forty-eight hours, with perfect safety, if deemed necessary. The local application of contractile collodion is carried out as suggested by Robbins. This form of local therapy relieves the pain instantly, protects the surrounding skin, permits the application of a small dry dressing and is not incompatible with other methods of treatment. The collodion must be of the contractile quality, not the flexible, and is applied by means of a saturated swab. From ten to twenty strokes are made around and on the boil, a small opening being left at the center, where the boil seems to be pointing. The collodion should be applied thickly and should extend well beyond the edge of the furuncle. As the collodion dries, the pain is relieved within thirty seconds and wrinkles will appear, extending on to the surrounding skin, demonstrating its contractility.

Delaware State Medical Journal, Wilmington

8: 55-72 (April) 1936

Conservative versus Radical Treatment of Fractures. H. R. Owen, Philadelphia.—p. 55.
Some Uncommon Bone Lesions. B. M. Allen, Wilmington.—p. 60.

Endocrinology, Los Angeles

20: 307-460 (May) 1936

Progestin Content of Blood. P. W. Bloch, Rochester, N. Y.—p. 307.
Studies of Nature of Antigonadotropic Substances. G. H. Twombly, New York.—p. 311.
Estrin-Deprivation Theory of Menstruation. C. F. Fluhmann, San Francisco.—p. 318.
Study of Ovaries After Administration of Gonadotropic Principle of Anterior Pituitary. E. C. Hamblen, Durham, N. C.—p. 321.
Effect of Estrogenic Substance on Blood Volume. Mae Friedlander, N. Laskey and S. Silbert, New York.—p. 329.
*Migraine and Ovarian Deficiency. S. J. Glass, Los Angeles.—p. 333.
Effect of Injection of Residual Ovarian Extracts. H. W. Marlow, Manhattan, Kan.—p. 339.
Biologic Effects of Thymectomy: Accruing Retardation in Growth in Succeeding Generations. N. H. Einhorn and L. G. Rowntree, Philadelphia.—p. 342.
Biologic Effects of Pineal Extract (Hanson): Accruing Retardation in Growth and Accruing Acceleration in Development in Successive Generations of Rats Under Continuous Treatment with Pineal Extract. L. G. Rowntree, J. H. Clark, A. Steinberg, Philadelphia, and A. M. Hanson, Faribault, Minn.—p. 348.
*Iodine Tolerance Test for Investigation of Thyroid Function. E. M. Watson, with technical assistance of A. S. Barber, London, Ont.—p. 358.
Presence of Excess of "Male" (Comb-Growth and Prostate-Stimulating) Hormone in Virilism and Pseudohermaphroditism. S. L. Simpson, London, England; P. de Fremery, Oss, Netherlands, and A. Macbeth, London, England.—p. 363.
Arrhenoblastoma: Case Report. L. G. Baldwin and J. A. Gafford Jr., Los Angeles.—p. 373.
Atrophy of Adrenals and Addison's Disease. W. Susman, Manchester, England.—p. 383.
Prostatic Atrophy Following Testicular Feeding. H. B. Myers, B. Vidgoff, G. H. Schade and W. C. Hunter, Portland, Ore.—p. 389.

Migraine and Ovarian Deficiency.—Glass made quantitative hormone assays before and after endocrine therapy in ten migrainous women. Quantitative assays of estrogenic substance and of the follicle stimulating factor in the blood and urine were made during one menstrual cycle before, and repeated once or twice after, endocrine therapy. The symptomatic management before endocrine therapy was instituted gave little or no permanent relief to the majority of these women. The nature of the menstrual disorders varied, but usually some degree of amenorrhea, oligomenorrhea or dysmenorrhea was present. Headaches occurred most frequently in relation to the actual menstrual flow, but most often in the premenstrual period. Sterility appeared prominently in the histories of six cases. Eight women responded readily to estrogenic therapy and, by hormone assays after treatment, it was determined that the follicle stimulating factor output was actually being suppressed. It may be concluded that its excess can be controlled by adequate estrogenization in the human being as well as the animal. Not only was there striking relief and control of the headaches but menstrual function was more or less normalized and general well being remarkably improved. This definite association of ovarian dysfunction with migraine may promote the investigation of many migrainous subjects. Relief has been maintained for periods varying from six to thirty-six months. However, relapses do frequently follow cessation of treatment and omission of treatment in three cases was followed by a return of the original hormone imbalance as well as the migrainous state. Estrogenic substance was used in doses (from 8,000 to 32,000 international units) adequately potent for the suppression of the gonad stimulating factor called "prolan." Relapse or failure to control the migraine seemed to be directly due to inadequate or infrequent estrogenization.

Iodine Tolerance Test of Thyroid Function.—Watson determined the relative rate of the disappearance from the blood of intravenously injected iodine in thirty cases by the following method: With the patient in the fasting state in the morning,

an amount of compound solution of iodine containing 250 micrograms of iodine per kilogram of body weight, after being diluted with 15 cc. of 0.85 per cent solution of sodium chloride, is injected intravenously. Samples of venous blood of about 12 cc. each are obtained immediately before the injection and five minutes, two, four and six hours afterward. These samples are received in tubes containing a small amount of potassium oxalate. Food is withheld from the patient during the test period. The concentration of iodine in each sample of whole blood is estimated by means of a method described by Perkin. In this procedure 10 cc. of blood is placed in a nickel crucible together with 2 Gm. of potassium carbonate and combusted on a hot plate and in a muffle furnace for four and one-half hours. The charred mass is extracted with alcohol and filtered, and the filtrate is evaporated to dryness. The residue is dissolved in water and, when the solution is made slightly acid with sulfuric acid and a drop of freshly prepared bromine solution is added, the iodine is oxidized to iodate. The addition of potassium iodide frees the iodine, which is estimated by titration with 0.001 normal sodium thiosulfate solution with starch serving as an indicator. The iodine content of the blood specimen secured five minutes after the injection of the iodine solution minus that of the preliminary control sample is regarded as representing the maximal increment caused by the injected iodine and is consequently recorded as 100 per cent. With this value as a basis, the observations for the other samples are expressed accordingly. While the results so obtained represent the relative rather than the absolute iodine concentrations, they do provide an indication of the rate of disappearance from the circulating blood of the injected iodine in a specified time. In thirteen of sixteen individuals with clinically normal thyroids, from 9 to 23 per cent of the injected iodine remained in the blood stream six hours after its injection. In six of ten patients with thyrotoxicosis, none of the injected iodine remained in the blood stream after six hours and in none of these cases was more than 5 per cent of the injected iodine found to be present at this time. In four cases of hypothyroidism the average quantity of iodine in the blood six hours after its injection was greater than normal. The iodine tolerance test may be of diagnostic importance in cases of doubtful thyroid disease.

Florida Medical Association Journal, Jacksonville

22: 449-496 (April) 1936

Important Considerations in the Handling of Diabetic Patients. T. Z. Cason, Jacksonville.—p. 459.

Remarks on Surgery in the Mentally Ill. J. H. Pound, Chattahoochee. —p. 463.

Where the Field of the Oculist Meets That of the Practitioner. B. F. Hodsdon, Miami.—p. 467.

Journal of Bacteriology, Baltimore

31: 323-440 (April) 1936

Studies of Streptococci: I. Qualitative Differences in Resistance to Various Agents. G. H. Chapman and W. B. Rawls, New York.—p. 323.

Id.: II. Quantitative Differences in Resistance to Sodium Bicarbonate and Hexylresorcinol. G. H. Chapman and Lillian Curcio, New York. —p. 333.

Id.: III. Preliminary Attempts to Correlate Resistance to Chemicals, etc., with Pathogenic Effects. G. H. Chapman, C. Berens and Edith L. Nilson, New York.—p. 339.

*Purification and Concentration of Diphtheria Toxin: I. Evaluation of Previous Methods: Description of New Procedure. M. D. Eaton, New Haven, Conn.—p. 347.

*Id.: II. Observations on Nature of Toxin. M. D. Eaton, New Haven, Conn.—p. 367.

Micrococcus Tetragenus Infection: II. Description of Variant Forms. H. A. Reimann, Minneapolis.—p. 385.

Id.: III. Immunologic Studies of Variant Forms, and Discussion. H. A. Reimann, Minneapolis.—p. 407.

Studies on Hemolytic Streptococci: I. Methods of Classification. Alice C. Evans, Washington, D. C.—p. 423.

Purification of Diphtheria Toxin.—Eaton endeavored to isolate diphtheria toxin in a pure state. The purification procedure is as follows: 1. To the crude toxic filtrate 18 cc. of 20 per cent calcium chloride solution per liter of toxin is added, allowed to stand for fifteen minutes and filtered through folded paper. 2. To the filtrate 233 Gm. of ammonium sulfate per liter is added, kept at p_H 7 by the addition of a few cubic centimeters of tenth normal sodium hydroxide, allowed to stand one hour in the refrigerator, and the precipitate filtered off on folded paper. 3. To the cooled filtrate 70 cc. of 10 per cent aluminum ammonium sulfate per liter is added and well shaken. The p_H should be about 6. This is stoppered and kept in the refrigerator overnight. The heavy precipitate is filtered off in a Buchner funnel. 4. The precipitate is ground with water in a mortar and suspended in a volume of water one third the volume of the original crude toxin, kept in the refrigerator for several hours and filtered on a Buchner funnel. 5. The precipitate is dissolved in a 2 to 4 per cent solution of sodium citrate using one twentieth the volume of the crude toxin and the Lf value is determined. (An Lf unit is the volume of toxin flocculating with one unit of antitoxin.) 6. The citrate solution of the alum-precipitated toxin is diluted so that it contains from 100 to 120 Lf units per cubic centimeter. The citrate concentration is adjusted to optimum for cadmium precipitation by adding a 5 per cent solution of cadmium chloride until a moderately heavy precipitate forms and the p_H is about 6. From one-half to one volume of cadmium chloride is required, depending on the citrate concentration, kept in the refrigerator for two hours and the cadmium toxin precipitate centrifugated down. 7. The precipitate is washed with a volume of water equal to the toxin solution before cadmium chloride precipitation and then filtered on a Buchner funnel. The precipitate is treated with from one fourth to one half its volume of a 2 per cent solution of sodium phosphate U. S. P. or a 1 per cent solution of sodium bicarbonate and allowed to stand for several hours or overnight in the refrigerator with occasional mixing. 8. The insoluble cadmium phosphate or carbonate is centrifugated down at high speed and the resultant red or red brown supernatant contains the concentrated and purified toxin. Purified toxins containing 0.0005 mg. of nitrogen per Lf unit and 0.00002 mg. of nitrogen per minimal lethal dose have been obtained.

Observations on Nature of Diphtheria Toxin.—The additional experiments of Eaton with the progressive purification of diphtheria toxin show that the ratio of nitrogen to Lf units in the toxin preparations appears to approach a constant value near 0.0005 mg. of nitrogen per Lf unit. None of the several purification processes so far used have yielded toxins with a lower N/Lf ratio. The highly purified toxins consist mainly of a protein which is not easily precipitated with acid at any p_H and contains no cysteine sulfur and very little or no tryptophan. Traces of proteoses from the culture medium, and of other proteins probably derived from the bacterial cells, are also present. The chemical, immunologic and physiologic properties of diphtheria toxin observed in the course of this work indicate that it is a single protein-like substance.

Journal of Biological Chemistry, Baltimore

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Effect of Tissue Extracts on Esterification of Cholesterol in Blood Serum. W. M. Sperry, New York.—p. 599.

Chemistry of Lipids of Tubercle Bacilli: XLIII. Composition of Leprosin. R. J. Anderson, J. A. Crowder, M. S. Newman and F. H. Stodola, New Haven, Conn.—p. 637.

Helium Solubility in Blood at Increased Pressures. J. A. Hawkins and C. W. Shilling, Washington, D. C.—p. 649.

Study of Estimation of Sodium in Blood Serum. E. G. Ball and J. F. Sadusk Jr., Baltimore.—p. 661.

Copper Selenite as Catalyst in Kjeldahl Nitrogen Determination. E. J. Schwoegler, B. J. Babler and L. C. Hurd, Madison, Wis.—p. 749.

Synthesis of Conjugated Bile Acids: II. Glycodesoxycholic Acid. F. Cortese and L. Bauman, New York.—p. 779.

Lactoflavine, Possible Contaminant of Vitamin-Free Diets. G. C. Supplee, G. E. Flanigan, Zaida M. Hanford and S. Ansbacher, Bainbridge, N. Y.—p. 787.

Journal of Comparative Neurology, Philadelphia

63: 369-550 (April 15) 1936

Efferent Fibers of Frontal Lobe of Monkey, Macaca Mulatta. P. M. Levin, Chicago.—p. 369.

Occurrence of Sensory Neurons Below the Ganglion Nodosum of the Vagus. Margaret E. Brown, New York.—p. 421.

Neurofibrillar Development in Central Nervous System of Chick Embryos up to Five Days' Incubation. W. F. Windle and M. F. Austin, Chicago.—p. 431.

Reconstitution in Nervous System Following Unilateral Reversal of Dorsoventral Axis in Part of Spinal Cord of Amblystoma Punctatum. C. Hutchinson, New Haven, Conn.—p. 465.

Size of Largest Nerve Cells in Fourth and Fifth Lumbar Ganglions of Albino Rat, According to Sex. J. Chornyak, Philadelphia.—p. 489.

Tractus Tectospinalis in Cat. A. T. Rasmussen, Minneapolis.—p. 501.

Fiber Connections of Posterior Parts of Cerebellum in Rat and Cat. R. S. Dow, Portland, Ore.—p. 527.

Journal of Immunology, Baltimore

30: 275-344 (April) 1936

*Observations on Poison Ivy Hypersensitiveness in Guinea-Pigs. F. A. Simon, Louisville, Ky.—p. 275.
Agglutinogens M and N of the Ainu. T. Kubo, Sapporo, Japan.—p. 287.
Antigenic Properties of Brain Tumors. A. Weil and E. Liebert, Chicago.—p. 291.
Antileukocytic Serum. W. B. Chew, D. J. Stephens and J. S. Lawrence, Rochester, N. Y.—p. 301.
Further Observations on Nature of Active Substance ("Anaphylatoxin") in Canine Anaphylactic Shock. C. A. Dragstedt and F. B. Mead, Chicago.—p. 319.
Variation in Susceptibility of Guinea-Pigs to Reversed Passive Anaphylaxis. H. Zinsser and J. F. Enders, Boston.—p. 327.
Nonidentity of Antigenic and Antitoxic Groups in Diphtheria Antitoxin. H. Eagle, Philadelphia.—p. 339.

Poison Ivy Hypersensitiveness.—Simon investigated the influence that the state of health and nutrition of guinea-pigs had on the development of hypersensitivity to poison ivy. He found that a dietary deficiency in vitamin C inhibited the development of hypersensitiveness to poison ivy. A well developed hypersensitiveness was demonstrated seven days after the first application of the extract. Injection of the extract intramuscularly, intraperitoneally and intravenously did not result in hypersensitiveness or did so to only a slight degree, whereas application to the surface of the skin resulted in a definite hypersensitiveness. Excision of the area of skin to which a sensitizing application had been made was ineffective in preventing the development of hypersensitiveness if excised from eighteen to twenty-four hours or longer after application. Excision of the site before this time prevented the development of sensitization. The method of spread could not be determined. Histologic study of the lesions revealed evidence of an acute inflammatory reaction in both the epidermis and the papillary layer of the corium, with considerable necrosis of epidermal cells. This reaction was observed in both a sensitized and a nonsensitized guinea-pig but was definitely more marked in the former. Attempts to sensitize the rat, rabbit and cat to poison ivy were unsuccessful.

Journal of Pediatrics, St. Louis

8: 403-532 (April) 1936

Factors Possibly Influencing Retention of Calcium, Phosphorus and Nitrogen by Infants Given Whole Milk Feedings: I. Curding Agent. P. C. Jeans, Genevieve Stearns, J. B. McKinley, Eva A. Goff and Dorothy Stinger, Iowa City.—p. 403.
Retentions of Nitrogen, Calcium and Phosphorus of Infants Fed Sweetened Condensed Milk. H. E. Harrison, New Haven, Conn.—p. 415.
*Respiratory Failure in Acute Epidemic Poliomyelitis: Late Results and Complications. M. B. Brahdy, Mount Vernon, N. Y., and M. Lenarsky, New York.—p. 420.
Bacillus Acidi-Lactici Meningitis in a New-Born Infant. J. D. Craig and L. L. Mackenzie, New York.—p. 434.
Interpretation of Routine Blood Cultures in Young Infants. R. W. Huntington Jr., St. Louis.—p. 438.
*Edema in Infancy and Childhood as an Expression of Chronic Dietary Insufficiency. Katharine Dodd and A. S. Minot, with assistance of Margaret Keller, Nashville, Tenn.—p. 442.
*Occurrence of Moderately Reduced Serum Albumin in Five Hundred Children in a Southern Clinic. Katharine Dodd and A. S. Minot, with assistance of Margaret Keller, Nashville, Tenn.—p. 452.
Seasonal Variation of Birth Weight of the New-Born. T.-A. Li, Shanghai, China.—p. 459.
Prophylaxis of Allergic Disease. J. Glaser and D. B. Landau, Rochester, N. Y.—p. 470.
Studies on Mode of Action and Metabolism of Vitamin D. W. Heymann, Cleveland.—p. 480.
Dehydration and Acidosis with Calcification at Renal Tubules. A. M. Butler, J. L. Wilson and S. Farber, Boston.—p. 489.

Respiratory Failure in Acute Epidemic Poliomyelitis.—Brahdy and Lenarsky found the Drinker respirator useful only in patients with paralysis of the respiratory muscles due to lesions in the spinal cord. The patients with injury of the respiratory center who were treated in the respirator all died. Such patients, as well as those with obstruction of the upper air passages due to inability to swallow saliva, mucus or vomitus, do better when treated by other methods. Patients with lesions of the spinal cord that cause paralysis of the diaphragm or thoracic muscles and who have definite signs of respiratory difficulty should receive treatment in a respirator. On the other hand, patients with slight evidence of respiratory embarrassment without dyspnea or cyanosis should not be placed in a respirator. When a patient has any involvement of the respiratory muscles or evidence of an ascending paralysis, he should be near a respirator, as there is no way of telling whether the condition will become worse. Follow-up data were obtained in the twenty-seven of the sixty-three patients who were discharged from the hospital. Some recovered use of their paralyzed muscles and are normally active children; others are handicapped but are able to get about, and several are bedridden. After leaving the hospital twelve patients died from some pulmonary condition, but in only two of these were roentgenograms taken. These were the only two fatal cases in which a diagnosis of massive atelectasis was made. Clinically atelectasis is frequently mistaken for pneumonia, and in some of the nine patients in whom a diagnosis of pneumonia or pulmonary edema was made the history strongly suggested the possibility of atelectasis. Massive atelectasis developed but was not fatal in five patients. Thus massive atelectasis developed in seven of the twenty-seven patients who survived their original respiratory paralysis.

Edema and Chronic Dietary Insufficiency.—Over a period of nine years Dodd and Minot collected reports of forty-one cases of edema in which a thorough study of the patient revealed no evidence of cardiac or renal involvement. Sometimes the edema was confined to the feet and legs, but there were several instances of generalized anasarca. The condition was observed in children from 4 months to 9 years of age. Five children of the group had no demonstrable disease other than generalized edema; nine either had, or were convalescent from, bacillary dysentery; ten had diarrhea with stools not typical of dysentery; three had pneumonia; two were diagnosed as having celiac disease, and three showed evidence of scurvy. There was one case each in which edema complicated pellagra, typhoid, tuberculous enteritis, diabetes and a common cold. Four children had histories of repeated infections. The previous diet was known to be good in three cases. In most of the other instances the diet offered was grossly deficient or there had been a long period when the appetite was poor. Breast feeding had been continued long after the supply of milk was sufficient, and supplementary foods had not been offered. The older children ate only potatoes, corn bread, turnip greens and beans. In twenty-six of the forty-one cases, various fractions of serum protein were made. The majority were children who were poorly developed and undernourished but not critically ill, in whom a mild, acute or chronic diarrhea apparently brought out a latent edema. The levels of hemoglobin observed give further evidence of their poor nutritional state. The levels of total protein and serum albumin were lower than any generally accepted range of normals. The most marked reduction is in the albumin fraction. Occasionally the globulin is reduced but in a majority of instances is normal or increased above the average. In most instances treatment of the primary disease together with a high protein diet and transfusions of blood, when necessary, brought about a prompt reduction of edema followed by a gain in real weight and recovery. Determinations of serum proteins during the recovery period showed a gradual increase to normal levels. In cases in which the edema was associated with the nonspecific type of diarrhea the serum proteins were raised to a more normal level, the edema disappeared and the diarrhea subsided. This observation throws some doubt on which is primary and which secondary when nonspecific diarrhea and nutritional edema occur together in infants and children.

Occurrence of Moderately Reduced Serum Albumin.—Dodd and Minot noticed that many children who entered the hospital with acute diseases tended to develop edema very easily when moderate amounts of parenteral fluids were given. It seemed possible that many of the children might have milder degrees of the same nutritional deficiency which had led to outspoken edema, and in this event the nutritional disturbance would be analogous to subclinical vitamin deficiency. Therefore the serum protein levels of 500 children who came to the clinic were determined. For comparison with these results a smaller group of well children of various ages, who were known to be on adequate diets, were similarly studied. The results of the studies confirm the observations of others that the serum proteins of infants are low and increase gradually to approximately the adult level at 2 years of age. The general level of serum albumin of the authors' clinic group, even in

the absence of acute or chronic illness, is somewhat below that of the normal group. The serum albumin in children with acute or chronic infection rarely reaches the normal average except in the presence of dehydration. The work indicates that a chronic low grade deficiency in serum proteins is common among the poorer children in the community. The diet, which is low in total calories and in protein, is probably the cause of the deficiency. Such children are predisposed toward the development of edema, especially in the presence of infection.

Laryngoscope, St. Louis

46: 245-320 (April) 1936

Present Status of Otitic Meningitis. J. G. Dwyer, New York.—p. 245.
Fracture of Base of Skull and Otosclerosis. G. Kelemen, Budapest, Hungary.—p. 252.
Galvanic Ionization Therapy in Allergic Rhinitis as Employed at the Manhattan Eye, Ear and Throat Hospital. H. A. Barrett, New York.—p. 262.
Surgical Approach to Nasal Accessory Sinuses. W. Mithoefer, Cincinnati.—p. 266.
The Ophthalmologic Relationship to Nasal Accessory Sinuses. E. B. Spaeth, Philadelphia.—p. 275.
Refinements in Tonsillectomy: Radical Tonsillectomy and Adenoidectomy. F. E. Stone and M. D. Berger, Brooklyn.—p. 287.
Considerations in Use of Barbiturates in Otolaryngology. W. M. Fitzhugh Jr., Philadelphia.—p. 292.
Benzedrine Vaporizer for Shrinking Mucous Membrane of the Nose and Eustachian Tube. S. Israel, Houston, Texas.—p. 305.

New England Journal of Medicine, Boston

214: 815-866 (April 23) 1936

Nonunion in Shaft Fractures of Humerus, with Particular Emphasis on Preoperative Care: Report of Treatment by Use of Massive Onlay Graft with Metal Screw Fixation. G. E. Haggart, Boston, and M. Peelen, Kalamazoo, Mich.—p. 815.
The Heart in Chronic Glomerular Nephritis. A. B. Richter, Flora, Ind., and J. P. O'Hare, Boston.—p. 824.
Enormous Benign Gastric Ulceration Caused by Multiple Foreign Bodies. P. H. Wheeler, Brattleboro, Vt.—p. 830.
Orthostatic Albuminuria in Homologous Twins. H. J. Bakst, W. Wetherbee Jr. and J. A. Foley, Boston.—p. 832.
Anorexia in Children. M. B. Low, Boston.—p. 834.
Chemistry in Relation to the Practice of Medicine. C. F. Whitney, Burlington, Vt.—p. 837.

214: 867-912 (April 30) 1936

Metastatic Abscess of Prostate. C. J. E. Kickham and N. A. Welch, Boston.—p. 867.
Warning About Acidification Therapy in Cases of Renal Infection Due to Proteus Bacillus. R. Chute, Boston.—p. 869.
Treatment of Hypospadias in Theory and Practice. H. Cabot, Rochester, Minn.—p. 871.
Lymphoblastoma (Hodgkin's and Sarcoma Type) of Bone: Report of Three Cases Simulating Primary Malignant Tumor of Bone. J. Spencer and R. Dresser, Boston.—p. 877.
*Two Unusual Transfusion Reactions. P. A. Younge, Boston.—p. 879.

Unusual Transfusion Reactions.—Younge states that, of his two transfusion accidents, one happened as the result of using a dangerous technic of matching blood. This faulty technic consists of placing a drop of the patient's serum on a glass slide, adding a drop of a saline suspension of the donor's cells and dropping a cover slip on the mixture. If the two drops are large there is enough space between the slide and the cover slip for the red blood cells to move about freely. If small drops are used, the liquid spreads out in a thin film and the red blood cells are fixed between the two glass surfaces. In this particular case the "cross matching" was observed for half an hour and checked by another intern. Immediately after the transfusion accident the matching was repeated by the same technic, with the original serum and suspension of cells. Again there was no sign of agglutination in an hour, but with the hanging drop technic agglutination occurred within five minutes. The patient's blood was found to be a group IV (Moss) and the donor's a group II. In the other instance both the patient and the selected donor had been grouped and doubly cross matched; i. e., the patient's cells in the donor's serum and the donor's cells in the patient's serum. Both the grouping and the cross matching were done by the hanging drop method. The patient and the donor were in group II (Moss) and no agglutination occurred in either of the "cross match" tests within half an hour. However, immediately after the transfusion accident all the tests were carefully repeated, with the finding that the donor's cells began to hemolyze in the patient's serum after forty minutes and were completely hemolyzed within sixty minutes. In the first case citrated blood was pumped into the vein under pressure, about five minutes being taken to introduce 300 cc. The symptoms commenced in less than a minute after the transfusion was completed, or in about six minutes after the start. In the second case whole blood by the new B-D grooved syringe method was introduced at the rate of about 15 cc. per minute. Symptoms developed after 90 cc. of blood had been given—about six minutes after the start. Transfusion was repeated in both cases a few days after the accidents and no symptoms of any type were observed.

New York State Journal of Medicine, New York

36: 681-756 (May 1) 1936

Intracranial Hemorrhage: Its Anatomic Forms and Some of Their Clinical Features. J. H. Globus, New York.—p. 681.
Diabetes in General Practice. J. R. Scott, New York.—p. 694.
Simple Mastectomy with X-Rays in Treatment of Cancer of Breast. E. J. Grace and W. Moitrier Jr., Brooklyn.—p. 701.
Analgesia in Labor. H. A. Peck, Albany.—p. 705.
Illuminated Suction. G. W. McAuliffe, New York.—p. 710.
Complications of Gastric and Duodenal Ulcers. D. P. MacGuire, New York.—p. 711.
Roentgen-Ray and Radium Therapy in Diseases of the Genito-Urinary Tract. G. G. Smith, Boston.—p. 717.
Fever Therapy in Some Generalized Dermatoses. L. Tulipan and W. Director, New York.—p. 722.
Aspirating Syringe with Side-Cock Adapter: For Aspiration of Knee Joint. M. S. Burman, New York.—p. 723.
Elusive Ulcer of Bladder, with Especial Reference to Its Treatment with Phenol. N. P. Sears, Syracuse.—p. 724.
Complete Hornification of Mucosa of Renal Pelvis Associated with Unusually Large Calculus: Case Report. M. M. Melicow, New York.—p. 728.
*Peptic Ulcer in Childhood: Case Report. F. J. Williams, Albany.—p. 730.
Between Mental Health and Mental Disease. B. Liber, New York.—p. 732.

Peptic Ulcer in Childhood.—Williams reports the occurrence of peptic ulcer in a boy, 5 years of age, who had always been in average good health and whose past history was negative except for minor disorders. He was seen in January 1932 with the complaint of recurrent pain in the abdomen. The onset of the disturbance dated back several weeks and, although the diet had been carefully restricted, there had been no improvement. At certain periods of the day he showed definite evidence of considerable distress in the abdomen. The pain awakened him at night, usually in the early hours of the morning. The physical examination was negative and it was impossible objectively to discover the reason for his apparent distress. There had been no elevation of temperature at any time. There was no abdominal rigidity, no tenderness to pressure and no distention. There had been no vomiting and no intestinal disturbance. Occult blood was not found in the stools. The absence of physical signs and the character of the pain suggested the possibility of ulcer. This diagnosis was verified by roentgen examination, which revealed a niche in the cap of the duodenum. The child was placed on a modified Sippy diet consisting of milk and bland foods given at frequent intervals, with the addition of alkalis. Improvement was noted almost at once and complete healing was accomplished after its continuance for several weeks.

Public Health Reports, Washington, D. C.

51: 493-534 (April 24) 1936

*Occupational Dermatitis Due to Heat Decomposition of Dyes. L. Schwartz and C. D. Hocker.—p. 493.
*Early Appearance and Rather Rapid Disappearance of Epithelial Cell Inclusion in Trachoma. C. E. Rice.—p. 510.
Occurrence and Host Relationships of the Tick Ornithodoros Talaje in Arizona: Notes. G. M. Kohls and R. A. Cooley.—p. 512.

Dermatitis Due to Heat Decomposition of Dyes.—Schwartz and Hocker investigated the cause of a dermatitis occasionally contracted by certain susceptible telephone cable splicers. The chief method used in the investigation was careful observance of rash-susceptible workmen occupationally engaged in planned cable-splicing tests. Patch tests and chemical studies were used as supplemental methods of investigation. Paper pulp cable conductor insulation, suspected as a possible cause of the rash, was not found to be the cause of the dermatitis. Splicing oil, a refined white mineral oil, was not a primary cause of the dermatitis. Mixtures of this oil and paraffin heated to nearly 400 F. are used to "boil out" (dry and impreg-

nate) cables while opened for splicing. The dermatitis was found to be produced by some irritant evolved during boiling-out operations. The rash occurred only while cables were being spliced in which the conductor insulation was colored with green and blue dyes. A red dye also normally used did not cause the dermatitis. Contact with the dyes themselves was shown not to be the chief cause of the rash, although a substantial quantity of the green dye applied in a patch test would cause skin reactions. The rash was not produced in cable-splicing tests in which the green and blue dyes were present if liquid petrolatum containing no splicing oil was used for boiling out. Apparently the oil is necessary as a fume carrier or as an agent present on a man's skin to facilitate the action of the volatilized irritants. The volatilized irritants were not certain suspected decomposition products of the dyes. While the irritants were not identified by experiment, their nature was fairly definitely surmised from chemical considerations. Splicing experiments with rash-susceptible men showed that the new dyes selected for experiments did not produce a rash even when splicing oil was present in the boiling-out compound. The seven splicers who had dermatitis and who were used in these experiments also had fungous infections on various portions of their bodies. This may be of significance as to their hypersensitivity to the decomposition products of the dyes.

Inclusion Bodies in Trachoma.—From March 15, 1935, to Feb. 1, 1936, Rice observed ninety-six individuals with varying degrees of lid activity in an effort to determine whether the epithelial cell inclusion might be associated with a certain period of the disease. Forty-nine of 184 actively infected eyes, or 27 per cent, showed the presence of epithelial inclusions. Of fifty-one cases under two years' duration, nineteen showed inclusions. Of forty-five cases with duration of the disease of two years or longer there were eight cases showing inclusions. The study seems to indicate that the epithelial cell inclusion seen frequently in this disease is much more likely to be found during the first six months of the disease than it is later. The oftener the examination can be done during the first eight weeks of the disease, the higher will be the percentage of cases showing the presence of the inclusion bodies.

Surgery, Gynecology and Obstetrics, Chicago

62: 781-908 (May) 1936

*Intravenous Use of Hypertonic Glucose in Obstetrics and Gynecology: Experimental and Clinical Study. H. B. Matthews and V. P. Mazzola, Brooklyn.—p. 781.
Control of Morbidity and Mortality Following Pelvic Surgery: Review of Second Series of One Thousand Consecutive Personal Cases. W. T. Dannreuther, New York.—p. 791.
Roentgen Pelvimetry and Fetal Cephalometry. R. P. Ball, Chattanooga, Tenn.—p. 798.
Effects of Removal of Functioning Gallbladder. G. S. Bergh, P. Sandblom and A. C. Ivy, Chicago.—p. 811.
*Paget's Disease (Osteitis Deformans) and Osteoporosis: Similarity of Two Conditions as Shown by Familial Background and Glucose Tolerance Studies. R. C. Moehlig, Detroit.—p. 815.
*Longitudinal Overgrowth of Long Bones, with Especial Reference to Fractures. J. D. Bisgard, Omaha.—p. 823.
Movements of the Soft Palate, with Especial Reference to Function of Tensor Palati Muscle. W. E. M. Wardill and J. Whillis, Newcastle-upon-Tyne, England.—p. 836.
Treatment of Carcinoma of Esophagus. P. P. Vinson, Rochester, Minn.—p. 840.
Ectopic Vaginal Ureter. C. L. Deming, New Haven, Conn.—p. 843.
The Clinical Management of Injuries to the Heart and Pericardium: Report of Seven Cases. J. M. Mayer, Louisville, Ky.—p. 852.
Ambulatory Method of Treating Fractures of Shaft of Femur. R. Anderson, Seattle.—p. 865.
Twenty Year Cures of Carcinoma of Colon. C. F. Dixon and P. F. Olson, Rochester, Minn.—p. 874.
Obstructive Cholecystitis, with Particular Reference to Acute Obstructive Cholecystitis and Its Sequels. S. H. Mentzer, San Francisco.—p. 879.
Pregnancy Following Cesarean Section. Katherine Kuder, New York.—p. 887.
Amputation of the Fingers. J. D. Willems, Chicago.—p. 892.

Intravenous Use of Hypertonic Dextrose in Obstetrics.—Matthews and Mazzola observed a group of ten cats in which shock with low blood pressure was artificially produced by hemorrhage and ten cats in which it was produced by trauma without hemorrhage. They found that the injection of a 50 per cent solution of dextrose into cats with artificially reduced blood pressure produced a rise in blood pressure, an increase or a return to the original pulse pressure and a slowing or a return to the original pulse rate. The first group of cats received dextrose previous to bleeding and they reacted to hemorrhage much better. The results indicate that the diminished blood pressure, the rapid pulse and the fall in pulse pressure subsequent to hemorrhage in the experimental animal can be combated. In the second group injections of the solution produced a rise in blood pressure, an increase or a return to the original pulse pressure and a slowing or a return to the original pulse rate. The results showed that the low blood pressure and the rapid pulse subsequent to trauma can be temporarily, at least, successfully combated by the intravenous injection of the 50 per cent solution of dextrose. Furthermore, if a fortifying dose is given the cat before trauma is performed, the subsequent fall in blood pressure and acceleration of the pulse are finally maintained more near the normal or above it than when no previous dextrose is given. Clinically, in cases of hypotension, intravenous 50 per cent solution of dextrose with routine preoperative rest gives the patient a wider margin of safety for operation. Cases of acute hemorrhage with diminished blood pressure have shown increase in blood pressure by the intravenous injection of 100 cc. of the solution. It tides these patients over until blood transfusion can be started. In primary shock or collapse it increases systolic blood pressure and greatly aids in bringing the circulation back. Preoperative dextrose makes reduction of blood pressure from hemorrhage or prolonged surgery more difficult. After operation it aids in overcoming acidosis and dehydration. By its action on the circulation, physiologic solution of sodium chloride administered by hypodermoclysis is more readily absorbed. It also aids in supplying carbohydrates when the oral route is contraindicated. In shock with or without hemorrhage, the dextrose solution is to be commended. Active treatment must be instituted before there is complete circulatory collapse. The patient who receives prompt treatment is the one who recovers. When blood is not available or when time is pressing, concentrated dextrose solution makes an excellent substitute. Concentrated dextrose preoperatively maintains pulse pressure, causes a slight rise in systolic blood pressure and, if repeated, prevents a fall. It diminishes postoperative vomiting and has considerable value as a food in the presence of peritoneal infection. Little or no damage is done the vein by its injection, provided the intima of the vessel is not excessively traumatized.

Paget's Disease and Osteoporosis.—Moehlig shows that Paget's disease and osteoporosis may occur in the same family. Data were gathered in ten cases of osteoporosis which showed that there was a diabetic family history in 40 per cent, 60 per cent had one or more members of the family who were 72 or more inches tall and 90 per cent gave a history of heavy set individuals in the immediate family. This corresponds with the data obtained in Paget's disease. In ten cases each of Paget's disease and osteoporosis the dextrose tolerance curves showed a diabetic type of curve. All patients with Paget's disease had an elevated plasma phosphatase. The plasma phosphatase was about normal in the patients with osteoporosis. The ages of the patients with Paget's disease ranged from 34 to 60 years, average 48 years. There were six male and four female patients. In the osteoporotic group the ages ranged from 46 to 57 years, average 52 years. There were two male and eight female patients. The pathologic condition at one stage is the same in the two diseases, i. e., osteoporosis; in Paget's disease the process goes on to the hypertrophic state with hypertrophic osteoid formation. The pituitary gland may be responsible for the two diseases, since it is concerned with skeletal development and carbohydrate metabolism. Furthermore, osteoporosis of the spine is present in acromegaly and the pituitary basophilia of Cushing. Hyperglycemia is frequently present in the two diseases and it is reasonable to assume that the disturbed pituitary function is related to the disturbed carbohydrate metabolism and the osteoporosis. Definite subjective improvement is noted in Paget's disease by giving a measured diet with insulin. One patient receiving this form of treatment for more than four months shows progression of the process in the skull although subjective improvement continues.

Longitudinal Overgrowth of Long Bones.—Bisgard investigated the problem whether the shortening in long bones is overcome by lengthening at the fracture site or by accelera-

tion of the rate of normal growth at the epiphyseal line. To this end he experimented on twenty-five kid goats. He summarizes the results of his investigation as follows: 1. Lengthening in excess of normal occurs in growing bones following fracture. The greatest gain in length takes place in the second month but continues at a much slower rate for at least seven months. 2. The excess length is gained at the ends of the shaft through an acceleration in the rate of osteogenesis, or, in other words, an increase in the activity of the processes responsible for normal growth. 3. Excessive growth occurs irrespective of the length of the bone or of the necessity of equalizing the length of extremities. If no shortening exists, actual overgrowth results (the fractured extremity becoming longer than the normal one). 4. Since excessive growth is localized to one extremity and usually confined to the fractured bone, it is believed that the stimulus responsible for it is likewise local. 5. Shortening alone, in the absence of a fracture, did not cause an acceleration of growth. Thus it is apparent that, if there is a compensatory mechanism within the body which is capable of regulating growth in an effort to maintain equality in the length of extremities, shortening alone does not excite this mechanism. It must be conceded, therefore, that the fracture and the reparative processes supply the stimulus, and it is suggested by the results of the experiments that this stimulus is merely incidental to the prolonged abnormal status of the circulation of the part caused by the fracture and its subsequent repair. This contention is also supported by reported clinical data.

Tennessee State Medical Assn. Journal, Nashville

29: 127-166 (April) 1936

Sympathectomy in Treatment of Thrombo-Angiitis Obliterans. P. E. Parker, Johnson City.—p. 127.
Rate of Growth Before Birth. E. F. Buchner Jr., Chattanooga.—p. 131.
Relief of Pain in Obstetrics with Pernocton. J. P. Long Jr., Memphis.—p. 135.
*Physical Reactions to Functional Disorders. L. C. Sanders, Memphis.—p. 139.
Abdominal Surgery in Children. R. A. Barr, Nashville.—p. 143.
Medical Economics and the Small Town Doctor. M. D. Arnold, Cleveland.—p. 147.

Physical Reactions to Functional Disorders.—Sanders believes that, when it is realized that there is a nervous counterpart for every organic disease and that no form of physical damage exists which is not imitated and reproduced by sensations practically identical with those accompanying organic disease, it is easy to understand the enormous variety of nervous symptoms and the unlimited manifestations of nervous discomfort. Physically, the individual with a neurosis is usually underbuilt, is only fairly well nourished, has cold, moist palms, rapid pulse, anxious mien, spastic colon and exaggerated peripheral reflexes, and is hypersensitive to pain. With a patient presenting such an emotional and physical background, the physician may well be cautious in condemning certain organs for removal or in prescribing drugs and diets. Too often such a patient grows worse, because what he needs is not surgery or diet or drugs but a readjustment of ideas and rest. The present-day physician must realize that more than half of his work is directed to the overcoming of functional, not organic, diseases. After the nervous balance has been restored and physical strength renewed, surgical procedures for chronic conditions may be safely done without fear of further damaging the nervous system. When the physical reactions of deranged organs or systems are known to be due to functional disorders from whatever cause, surgical procedures merely add insult to injury and further damage the already breaking nervous system. The only sound and abiding basis for the cure of functional disorders, on a psychic or nervous basis, is rational reeducation.

West Virginia Medical Journal, Charleston

32: 197-244 (May) 1936

Carcinoma of the Stomach. J. E. Cannaday, Charleston.—p. 197.
Our Medical Profession. D. A. MacGregor, Wheeling.—p. 202.
Psychoses with Somatic Disease. E. F. Reaser, Huntington.—p. 206.
Mild Hypothyroidism. G. H. Barksdale, Charleston.—p. 216.
Some Surgical Aspects of Diabetes. H. G. Thompson, Charleston.—p. 218.
Diaphragmatic Hernia: Report of Three Cases of Paresophageal Hernia. V. L. Peterson, Charleston.—p. 223.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

53: 1-74 (Spring) 1936

Photography and Medicine. A. E. Iles.—p. 3.
Ultramicroscopic Examination of Blood Serum in Disease. B. A. Peters.—p. 17.

British Journal of Experimental Pathology, London

17: 87-158 (April) 1936

Reticulocytosis in Guinea-Pigs in Relation to Standardization of Liver Extract. G. Ågren and T. Caspersson.—p. 87.
*Mechanism of Immunity in Rift Valley Fever. G. M. Findlay.—p. 89.
Parathormone Tolerance in Dogs. N. B. Taylor, C. B. Weld and J. F. Sykes.—p. 104.
Observations Bearing on Antigenic Composition of Psittacosis Virus. S. P. Bedson.—p. 109.
Daels and Biltris Transplantable Sarcoma of Guinea-Pig. A. F. Watson.—p. 122.
Chemical Reducing Capacity and Vitamin C Content of Transplantable Tumors of Rat and Guinea-Pig. A. F. Watson.—p. 124.
Experiments on Filtration of Climatic Bubo (Lymphogranuloma Inguinale) Virus Through "Gradocol" Membranes. J. C. Broom and G. M. Findlay.—p. 135.
Coli-Tryptophan-Indole Reaction: II. Nonproduction of Tryptophanase in Mediums Containing Glucose. F. C. Happold and L. Hoyle.—p. 136.
Agglutinogens M and N in Allergic Conditions. D. Harley.—p. 143.
False Agglutination Reaction Observed with Anti-M and Anti-N Serums. D. Harley.—p. 145.
Effects of Exhaust Gases from Internal Combustion Engines and of Tobacco Smoke on Mice, with Especial Reference to Incidence of Tumors of Lung. J. A. Campbell.—p. 146.

Mechanism of Immunity in Rift Valley Fever.—Findlay states that, as the result of acquired active immunity, Rift Valley fever immune bodies can be demonstrated in the serum of human beings from four to five years after infection. Certain mixtures of Rift Valley fever virus and immune serum, apparently neutral when injected intraperitoneally, can be reactivated or dissociated by simple dilution with saline solution. This phenomenon is quantitative; for, if falling dilutions of virus are added to equal amounts of undiluted immune serum, a point is reached at which the mixture can no longer be reactivated or dissociated by simple dilution. Mixtures, separately prepared before incubation at 37 C., and containing dilutions of virus and immune serum equivalent to those derived, after incubation, by decimal dilution of a nondissociable mixture of undiluted immune serum and virus, were active when inoculated intraperitoneally. Certain mixtures of Rift Valley fever virus and immune serum, apparently neutral when injected intraperitoneally, can be reactivated by intranasal instillation. This phenomenon is also quantitative and can be demonstrated only with those serum-virus mixtures that can be reactivated by simple dilution. Certain mixtures of Rift Valley fever virus and immune serum, apparently neutral when injected intraperitoneally in doses of 0.4 cc., are found to be active when injected intraperitoneally in doses of 0.03 cc. This phenomenon is also quantitative and can be demonstrated only with those serum-virus mixtures that can be reactivated by simple dilution. The reactivation of an apparently neutral mixture by intranasal instillation is probably due not so much to the route of inoculation as to the small quantity of the inoculum. Evidence is brought forward to show that mice which have survived an injection of virus and immune serum are immunized only when the amount of virus in the mixture injected exceeds a certain minimum. The author gives the following hypothesis in explanation of the foregoing facts: When a large inoculum of immune serum and virus is injected, a certain number of cells are immediately invaded by the virus, which proceeds to grow in these cells. Virus will be liberated from these cells, and at the same time immune bodies will be produced from the tissues. Virus so liberated meets with the immune bodies present in the serum and, provided the proportion of immune bodies and virus is correct, there forms a nondissociable mixture. The immune bodies are provided both by the foreign serum originally injected and the immune bodies formed from the animal's own tissues. As the passively injected immune bodies are excreted, the actively produced immune bodies take their place, and thus a balance is struck between the amount of virus and the amount of immune bodies. Death does not

take place. When a small quantity of virus and immune body is inoculated, the same process occurs as before, but now the small amount of passively injected immune bodies disappears more rapidly from the circulation, while the small amount of virus produces in the same time a comparatively small amount of immune body. A point is thus reached at which there is no longer any passive immune body left and the amount of active immune body is small. Virus is therefore present in an active condition, and death can occur.

British Journal of Ophthalmology, London

20: 193-256 (April) 1936

*Atypical, Indirect, Incomplete Rupture of Sclera. A. Tillema.—p. 193.
Vascularization of Iris and Cornea in Diabetes. R. D. Lawrence and A. H. Levy.—p. 198.
Trachoma: Investigation into Question of Presence of Bacterium Granulosis (Noguchi) in Cases of Trachoma in Glasgow. S. S. Meighan and Mary Urquhart.—p. 201.
Water Binding of Optic Nerve and of Its Sheaths. J. A. van Heuven and P. F. Fischer.—p. 204.
Scientific and Practical Value of Ionization in Ophthalmology: Recent Advances and Researches. G. Erlanger.—p. 213.
Sclerectomy with Iridencleisis: Modified Glaucoma Operation. W. A. Wille.—p. 229.

Incomplete Rupture of Sclera.—Tillema cites two cases of incomplete rupture of the sclera in which the pathologic changes observed in the inner layers of the sclera may have arisen through the raised intra-ocular pressure causing a staphyloma of the sclera, and through a partial rupture of the sclera. The microscopic observations are based on partial rupture of the sclera. Two different types of rupture were found: a typical rupture near the corneal limbus in the first case, and an equatorial (i. e., atypical) rupture in both cases. Only the cases of von Szily, Fuchs and Burk are described in sufficient detail to warrant a sure diagnosis. All three cases constitute typical, incomplete ruptures of the sclera. To this small number of incomplete, typical ruptures the author adds the anterior rupture in his first case, bringing the total up to four. As atypical, incomplete ruptures have not yet been recorded, his two instances of incomplete, equatorial rupture are new. In both cases mainly the inner layers of the sclera were affected. This agrees with what is known of ruptures in general. Although the literature yields no other cases of this type, he believes that it is not so rare as this would suggest. Garnier (1891) gives a detailed description of traumatic glaucoma in a young boy whose eye had to be removed two weeks after the accident. Within this short period a staphyloma had developed superiorly and medially at the equator. If glaucoma had been the cause of distention of the sclera, one would expect the sclera to distend generally, as in cases of buphthalmos. As in Garnier's case a staphyloma developed within two weeks after a blow, it is reasonable to suspect a traumatic lesion to the sclera. Moreover, the staphyloma developed superiorly and medially, and in the present cases pathologic changes were most marked in the same region. The majority of scleral ruptures occur upward and inward.

British Medical Journal, London

1: 679-736 (April 4) 1936

Crusade Against Acute Rheumatism. W. T. Ritchie.—p. 679.
*Thoracoplasty in Treatment of Pulmonary Tuberculosis. F. H. Young.—p. 683.
Laryngeal Vertigo with Record of Case: Note. D. K. Adams.—p. 685.
Disk-Shaped External Semilunar Cartilage. A. G. T. Fisher.—p. 688.
Treatment of Familial Acholuric Jaundice. S. O. Cowen.—p. 690.
Test Meal Findings and Biliary Disease. H. Lawrie, in collaboration with A. Callam and J. H. Watson.—p. 692.

Thoracoplasty in Treatment of Pulmonary Tuberculosis.—In considering what type of cases are likely to be benefited by thoracoplasty, Young emphasizes the fundamental fact that thoracoplasty affects directly only a local area of the lung, whereas pulmonary tuberculosis affects the whole body. In every case of active pulmonary tuberculosis, in addition to the obvious diseased areas, tubercle bacilli are present in apparently healthy areas of the lung, in mediastinal glands and intermittently in the blood stream. Thoracoplasty should be considered in all cases of pulmonary tuberculosis which have not achieved arrest of the disease by other means, but before recommending a thoracoplasty in any case the following conditions must be satisfied: 1. The lesion for which it is proposed must be the type that will heal if mechanical impediments are removed, and the thoracoplasty must be likely to remove them. 2. If lesions are present in the other lung they must be "inactive." 3. Fresh "flares" in apparently healthy areas must be improbable. 4. The patient must be fit for the operation. 5. The patient must have reached the most favorable moment for the operation. 6. Technical conditions must be satisfactory. 7. The functional result is all that matters to the patient, so it must be clear that a good functional result will be obtained. The effects of a thoracoplasty are not the same as those of a complete artificial pneumothorax. A successful artificial pneumothorax is more efficient and less dangerous than a thoracoplasty and should always be tried before a thoracoplasty but should not be persisted with if inefficient. Thoracoplasty represents the last stage in the active treatment of any tuberculous lesion in the lung. An error made in the selection of the case or the stage in the disease when the operation is performed can never be repaired, but in no form of treatment will skilled collaboration between the physician and the surgeon be more amply repaid.

Journal of Laryngology and Otology, London

51: 213-280 (April) 1936

Use of Hearing Aids in Treatment of Defects of Hearing in Children. I. R. Ewing and A. W. G. Ewing.—p. 213.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

43: 201-392 (April) 1936

*Postabortal and Puerperal Gas Gangrene: Report of Thirty Cases. A. M. Hill.—p. 201.
Quadruplets: Case. J. B. Dawson.—p. 252.
Eclampsia in Bombay. C. M. Mehta.—p. 267.
Rare Uterine Anomaly. H. de Sa.—p. 281.
Axial Rotation of Cysts of Fallopian Tube Tumors. N. B. Papikoff.—p. 286.
*Exposure to Violet Ray as Prophylactic Agent to Nipples in Last Month of Pregnancy. E. K. MacLellan.—p. 290.

Postabortal and Puerperal Gas Gangrene.—Hill observed thirty cases of postabortal and puerperal gas gangrene between April 1933 and February 1935. Of the thirty cases, twenty-two were associated with abortion (postabortal) and eight with labor at term or near term (puerperal). From twenty-two Clostridium Welchii and from two Vibrion septique were recovered from the tissues during life. The mortality was 63 per cent. The considerable frequency of this dread infection, which is protean in its manifestations and of recently increased incidence in Melbourne, is indicated. The fundamental importance of early diagnosis is emphasized. The clinical features of the various types have been outlined, systematized and, when this was thought to be of value, classified in an attempt to achieve clarity and assist early recognition. The principles underlying successful treatment are early diagnosis, early elimination of the primary focus and immediate and massive serologic and general therapy. The author suggests that during early pregnancy the uterine blood vessels have a relatively small caliber and that venous thrombosis as a result of endothelial damage by the Clostridium Welchii toxin is particularly likely. In the uterus engorged with blood clot the organisms find a rich and undisturbed pabulum in which growth and hemolysis proceed apace. In the later weeks of pregnancy, on the other hand, the uterine muscle is greatly hypertrophied and the caliber of its vessels is enormously increased. A more massive muscle infection and a greater rate of toxic and organismal absorption are now possible. But, in keeping with the increased blood supply and the diminished frictional resistance in the large venous channels, thrombosis, and with it hemolysis, are much less liable to occur. It is possible that in some cases of overwhelming infection thrombosis may be forestalled by death. In skeletal muscle infection, as Toombs suggested, the relatively poorer vascular and lymphatic supply apparently accounts for the comparative rarity of general hemolytic phenomena. Finally, to the Clostridium Welchii toxin as a whole may be attributed that state of collapse and peripheral circulatory failure which is the terminal feature of fatal cases and the result, as Topley and Wilson have pointed out, of the deleterious action of the toxin on the adrenals.

Ultraviolet Irradiation as Prophylactic for Cracked Nipples.—For two or three years MacLellan treated cracked and painful nipples that occur in the last month of pregnancy

by exposure to air. A warm flannel cover for the breast with two small apertures to permit exposure was provided. There seemed to be a decided improvement. This suggested the use of the ultraviolet ray as a prophylactic agent. From six to eight treatments, depending on whether the patient is of the blond or brunette type, have been employed for the last two years. The treatment is started with one and a half minutes' exposure at 40 inches and given three times a week, working up to ten minutes' exposure per treatment. Only the nipple and areola are exposed. Since this treatment was started, in not one instance has there been even the slightest trouble, some fifty patients having been treated.

Lancet, London

1: 701-758 (March 28) 1936

Certain Septicemias Due to Anaerobic Organisms. A. Lemierre.—p. 701.
Medical Problems in Mineral Metabolism. R. A. McCance.—p. 704.
*Some Observations on Excretion of Ascorbic Acid. H. E. Archer and G. Graham.—p. 710.
Treatment of Carcinoma of Cervix Uteri by the Stockholm Technic at the London Hospital (1929 and 1930). A. Brews.—p. 713.
Apical Thoracoplasty, with Description of Recent Modifications in Technic. W. H. C. Romanis and T. H. Sellors.—p. 714.
Stenosing Tendovaginitis at Radial Styloid Process. B. H. Burns and V. H. Ellis.—p. 717.
Pemphigus Acutus: Case. F. L. Ker.—p. 718.

Observations on Excretion of Cevitamic Acid.—Observations after a single test dose undoubtedly show that a deficiency of cevitamic acid exists, but they do not, in the opinion of Archer and Graham, give such full information as to the amount of cevitamic acid which must be given before the percentage output rises above 75. In their case of scurvy the significant rise in the excretion occurred when 1,700 mg. had been given, in comparison with 600 mg. in Johnson and Zilva's case, with 1,200 mg. in a test case and with 1,400 mg. in Harris and Ray's case. This is a very small difference, and it would be difficult to know where to draw a line between scurvy and a potential case of scurvy, and a case of vitamin C subnutrition. The percentage output in Johnson and Zilva's case rose to 56 per cent after 1,360 mg. and to 87 per cent after 1,480 mg. had been given; in Harris and Ray's case it rose to 77 per cent after only 1,480 mg. had been given, and in the authors' test case, although it reached 48 per cent after 1,600 mg. had been ingested, it did not reach 75 per cent until 3,200 mg. had been taken. The percentage output did not exceed 53 per cent even after 4,950 mg. had been ingested. The observation suggests that the percentage output is much more valuable evidence that a patient has scurvy than the amount of cevitamic acid taken before the excretion increased, or the amount excreted after a test dose.

1: 759-822 (April 4) 1936

Differential Diagnosis of Diseases of Colon: Dysentery and Colitis. P. Manson-Bahr.—p. 759.
Medical Problems in Mineral Metabolism. R. A. McCance.—p. 765.
*Mandelic Acid and Ammonium Mandelate in Treatment of Urinary Infections. H. E. Holling and R. Platt.—p. 769.
*X-Ray Appearances of Lungs of Electric Arc Welders. A. T. Doig and A. I. G. McLaughlin.—p. 771.
Some Effects of Prolonged Administration of Estrin in Rats. C. S. McEuen, H. Selye and J. B. Collip.—p. 775.
Tumor of Pituitary Induced with Follicular Hormone. B. Zondek.—p. 776.

Treatment of Urinary Infections.—Holling and Platt used mandelic acid in the treatment of twenty-nine patients suffering from urinary infections. Catheter specimens of urine were first examined to determine the nature of the infection, and pyelography (retrograde or intravenous) was performed, when necessary, to exclude pyonephrosis, calculus or tuberculosis. The first few patients were given mandelic acid, neutralized by sodium bicarbonate as described by Rosenheim. Later 3.2 Gm. of sodium mandelate, 4 Gm. of syrup of orange and enough water to make 30 cc. were prescribed in water four times a day. This was preceded by 2 Gm. of ammonium chloride and 1 cc. of liquid extract of liquorice in enough water to make 30 cc. given four times a day. During treatment daily fluid intake was restricted to 2 pints (1 liter) unless thirst was complained of, when more fluid was allowed. The acidity of the urine, which must attain a p_H of 5.3 or less, was tested by the addition of 5 drops of methyl red solution to 2 cc. of urine. Specimens of urine were examined at intervals of two days when possible. When the deposit (examined as a wet film) showed only a few leukocytes and no bacilli, cultures were again made from catheter specimens. In every uncomplicated case of acute or chronic pyelonephritis the urine was rendered sterile by mandelic acid treatment in from two to twenty-one days. There were five failures, in cases that were really not suitable for mandelic acid treatment. During treatment a few casts and a trace of albumin occasionally occur in the urine. The treatment is obviously unsuitable in the presence of renal insufficiency, because badly damaged kidneys cannot excrete a sufficiently acid urine or a sufficient concentration of mandelic acid. Nevertheless the presence of nephritis in an earlier stage does not appear to be a contraindication. The only disadvantage of mandelic acid treatment is the necessity of giving two somewhat unpleasant medicaments, one followed closely by the other, four times in the day. To obviate these disadvantages if possible, the authors tried the acidifying effect of elixir of ammonium mandelate on themselves and found that doses of 34 grains (2.2 Gm.) of ammonium mandelate four times daily produced a satisfactory urinary acidity (p_H 5.3) within an hour or two but that this degree of acidity was not invariably maintained throughout the day. Therefore, they concluded that somewhat larger doses should be given. Four patients were treated with ammonium mandelate, and in all four a sterile urine was obtained in a week or less, though all had a chronic infection. On the basis of their experience, together with what is already known of mandelic acid treatment, they feel justified in saying that ammonium mandelate is a convenient means of administering mandelic acid and that in the majority of cases the use of ammonium chloride can thereby be obviated. The suitable dose of ammonium mandelate is probably the same as that of the sodium salt.

X-Ray Appearances of Lungs of Electric Arc Welders.—Doig and McLaughlin declare that chronic pulmonary lesions directly associated with the occupation have not been recorded up to the present time as occurring in electric arc welders. The results of a clinical and roentgen examination of the chests of sixteen electric arc welders are presented. They are apparently healthy men and are actively engaged at their occupation. Nearly all were apprenticed to electric welding at 14 years of age and have worked at no other trade. The roentgenograms of six show a generalized fine mottling over both lung fields; the remaining roentgenograms show less marked changes, but none could be considered a picture of a completely normal chest. The conditions that have to be considered in the differential diagnosis include miliary tuberculosis, asbestosis, silicosis and other pulmonary conditions caused by dust or fumes. The authors are not prepared to be dogmatic about the interpretation of the roentgenographic and clinical observations, especially because no opportunity for histologic examination of the lungs has arisen. Little doubt exists, however, that the changes in the lungs have been brought about in these men by the dust or fume which they have inhaled while working. During welding operations, dense white or grayish white fume rises up continuously from the spot that is being welded. The fume is made up of the volatilized constituents of the coverings of the rods together with fine particles of oxidized metal, usually in the form of iron oxides. In addition the fumes probably contain gases, such as nitrogen peroxide and ozone, which are formed by the action of an electric spark on the air. The composition of the coverings of the electrodes is usually sodium silicate. The coverings of a certain type of electrode contain asbestos. The rods are sometimes dipped in a mixture containing powdered asbestos and sodium silicate, or asbestos yarn is wound round the rod and fixed by sodium silicate. In some cases the asbestos completely covers the rods, and in others it is merely a cord which is wound spirally about the rod. The roentgen appearances in the well marked cases differ from the usual picture of asbestosis. In none of the positive cases and in only one of the suggestive cases was there any blurring of the diaphragmatic shadow, and in no case was the heart outline blurred. The line of the interlobar septum was seen in only one positive case. The upper lung fields appear to be the earliest, and in established cases most markedly, affected. Before asbestosis can be eliminated from the differential diag-

nosis it must be remembered that the asbestos fibers are being subjected to intense heat and are not in the same physical state as the fibers which are inhaled by workers in an asbestos factory. It is possible that an atypical picture of asbestosis might be produced by the inhalation of altered asbestos. The roentgen appearances resembles those of a fine silicosis, but the clinical features show two important differences: 1. The electric welders examined are in good health and are fit to work. The only symptoms observed were slight cough and morning expectoration. None of the men suffer from dyspnea. 2. None of them have concomitant pulmonary tuberculosis. Miliary tuberculosis can be ruled out of the differential diagnosis for clinical reasons, and to some extent on the x-ray appearances.

Medical Journal of Australia, Sydney

1: 385-416 (March 21) 1936

*Treatment of Patients Infested with Taenia Saginata, with Especial Reference to Certain Unusual Results. H. B. Penfold.—p. 385.
Surgical Treatment of Carcinoma of Thoracic Esophagus. E. S. J. King. —p. 399.

Treatment of Patients Infested with Taenia Saginata.—Penfold declares that by the use of large but safe doses of liquid extract of male fern approximately 90 per cent of cases of Taenia saginata infestation can be cured by one treatment. The combined results of the treatment of both children and adults were seventy-seven cures in his eighty-six cases treated for the first time. Eight of the nine patients treated a second time were cured, while the result in the remaining case is doubtful. There is no reason to suppose that, when the drug fails on the first occasion, it is because the worm is unduly resistant to it, for, if this were so, the percentage of successes on the second treatment would be much less than on the first treatment, which has not been found to be the case. This suggests that changing the anthelmintic, if the first treatment is not successful, is not warranted. The treatment is simple, but it must be carried out with care, since the effective therapeutic dose is not much less than the toxic dose. The main factors for successful treatment are adequate preparation of the patient and the administration of an adequate dose of an active extract of male fern in such a manner that the chance of vomiting is reduced to a minimum. To prevent the toxic effects of liquid extract of male fern, which may be fatal, an overdose should not be given and it should be made certain that the intestine is well evacuated for from four to five hours after administration of the anthelmintic. In almost all cases of infestation, whether single or multiple, it can confidently be asserted that the major portions of all the worms present will be expelled, provided the recommended total dose, 10.7 cc. of an active male fern extract, has been administered and not vomited. After administration of liquid extract of male fern the worms harbored by some patients cannot be expelled by purgatives, although they cease to live and are apparently digested. Patients from whom the head of the worm has not been found should not be retreated unless segments reappear. The immediate treatment is not materially altered by the discovery of the head, and therefore, to save time, a search for it might be omitted.

Journal of Oriental Medicine, Dairen, South Manchuria

24: 31-46 (March) 1936

Smuggled Pai Mien Yao in Mukden and Vicinity. R. Ito.—p. 31.
Concentration of Diphtheria Antitoxins. A. Abiko.—p. 33.
Treatment of Kala-Azar. Mo Ten Sei.—p. 33.
Kaschin-Beck's Disease in To-Hen-Do of Manchukuo. M. Aiiso.—p. 34.
Dermatomycosis, Especially Favus in Lehoshan, Dakushan, Tonrian and Supingai in Manchukuo. S. Niizawa.—p. 34.
Studies on Trichomonas Vaginalis Donné: I. Distribution of Trichomonas Vaginalis Among Japanese, Koreans and Manchurians in Dairen. K. Matsuda.—p. 35.
Id.: II. Morphology of Trichomonas Vaginalis. K. Matsuda.—p. 36.
Statistical Study of Influence of Meteorological Conditions on Mortality from Various Diseases in Manchukuo. S. Kawahito.—p. 37.
Examinations on Innervation of Human Gums; Morphology of Nerve Endings in Normal and Pathologic Conditions; Animal Experimental Proofs: I. Innervation of Nerve Endings of Normal Human Gums. T. Hosaka.—p. 41.
Investigations on Biologic Characters of Leishmania Donovani. Y. Saito. —p. 43.
Study on Method of Conserving Vegetables in the Winter. A. Abe and F. Etô.—p. 44.
Tumor Testis. S. Hayashi.—p. 45.

Presse Médicale, Paris

44: 561-584 (April 4) 1936

Statistical Study of Aron's "Cancer Reaction." A. Stolz, M. Aron, A. G. Weiss and Kuntzmann.—p. 561.
*Cerebral Pseudotumors. T. de Martel, J. Guillaume and R. Thurel. —p. 563.

Cerebral Pseudotumors.—According to de Martel and his collaborators, the partitions of the subarachnoid space and the ventricular cavities can produce syndromes analogous to those of cerebral tumors and by means of the same physiopathologic processes. They consider in some detail circumscribed serous leptomeningitis, which is unilateral and occupies the lesser convexity of the anterocerebral fossa. These lesions produce the symptoms of tumor, such as headache, frequent vomiting and epileptic attacks, central facial paralysis, brachiomonoplegia and hemiparesis, especially of the brachiofacial region, and aphasia and anamnesia are commonly present. Diffuse intracranial hypertension is usually absent. The results of surgical intervention, which consists in the simple evacuation of the serous collections, demonstrate the site of compression in the production of pseudocortical lesions. Thanks to encephalography, after injection of air by lumbar puncture or ventricular puncture, localized lesions in the foramen of Monro can be recognized. The best therapeutic measure for this lesion consists in interrupting the septum lucidum, which allows emptying into the lateral ventricle and thus into the third ventricle. Pseudotumors of the posterior cerebral fossa are characterized by headache predominating in the occipital region, vomiting, disorders of equilibrium and the usually increased cerebrospinal pressure. Usually the condition can also be relieved by operation. Finally the authors discuss arachnoiditis of the optic chiasm. In all the described conditions the symptoms closely resemble a tumor of the same region and frequently the preoperative differential diagnosis is difficult. Surgical treatment, as a rule, is highly successful.

44: 585-600 (April 8) 1936

Diagnosis of Cancer of Body of Uterus. L. Bérard and F.-E. Leclerc. —p. 585.
Hemiplegia of Cardiac Patients. J.-A. Chavany.—p. 587.
*Success of New Treatment of Hemorrhagic Diathesis. J. R. Dreyfus. —p. 589.

Treatment of Hemorrhagic Diathesis.—In the opinion of Dreyfus, hemorrhagic diatheses include all those diseases which show a syndrome with a tendency to cutaneous, mucosal or visceral hemorrhages. Hemophilia, fibrinopenia and purpura of infectious origin are not included. Examples of several cases of hemorrhagic diathesis are illustrated by case reports. The marked improvement that occurred in these patients as a result of parenteral administration of vitamin C was striking. The author speculates as to the mechanism of action of cevitamic acid and liver extract when administered parenterally and its favorable effect on the hemorrhagic diathesis. No conclusions can be drawn, but the author believes that there is no doubt concerning the practical efficacy of vitamin C administration, especially parenterally.

44: 601-624 (April 11) 1936

Nose and Asthma. A. Jacquelin and R.-A. Chait.—p. 601.
*Importance of Auricular Sounds in Normal and Pathologic States. E. Braun Menendez and O. Orias.—p. 603.

Auricular Sounds in Normal and Pathologic Conditions.—Braun Menendez and Orias studied graphically the appearance of the auricular sounds. They concluded that the auricular contraction produces this sound constantly. It seems to be composed of vibrations originating in the auricle during systole and of vibrations produced in the ventricle by the action of blood forced out by the auricular systole. The auricular vibrations form the initial oscillation of the first heart sound. The auricular sound, considered an acoustic phenomenon independent of the first heart sound, can be heard and constantly recorded by way of the esophagus. Over the precordium it can be frequently found in infants and in 20 per cent of the young adults. The auricular sound is the most common cause of sounds that are diagnosed by auscultation as reduplication of the first sound. Furthermore, the auricular sound can be

intensified by auricular hypertrophy, by increase in the blood volume forced out by the auricle, or by diastolic ventricular hypotonia.

44: 649-672 (April 18) 1936

Iodine in Physiology and Pathology of Thyroid. F. de Quervain.—p. 649.
Angiomas of Digestive Canal. M. Brulé, P. Hillemand and J.-M. Génestoux.—p. 652.
*Acute Peritoneal Onset of Some Abscesses of Right Hepatic Lobe. P. Huard and J. M. May.—p. 654.
So-Called Positive Wassermann Reactions in Cerebrospinal Fluid of Patients with Brain or Cord Tumors. J. Desneux.—p. 655.

Acute Peritoneal Involvement in Liver Abscess.—Huard and May report three cases in which symptoms of acute peritonitis occurred during the course of abscesses of the right hepatic lobe. The resultant syndrome is characterized by a sudden onset developing while the patient is in good health or after some vague digestive prodromal symptoms, followed by an intense acute pain in the right hypochrondrium accompanied by a contracture of the epigastrium. The clinical course varies. The pathogenesis is not well understood and the authors do not know to what degree the peritoneum is involved or whether the disorder is spread there by means of a lymphangitis. Further clarification of this clinical syndrome is desirable.

44: 673-688 (April 22) 1936

Elimination of Pathogenic Microbes by Hepatic and Renal Glands. E. Chabrol, L. Duchon, J. Cottet and M. Cachin.—p. 673.
Gas Gangrene After Drug Injections. A. Touraine.—p. 674.
*Some Effects of Intra-Arterial Injections. P. Huet and D. Bargeton. —p. 677.

Intra-Arterial Injections.—Huet and Bargeton believe that the general toxicity of a substance is less when it is introduced intra-arterially than intravenously. To determine more precisely the reactions to an intra-arterial injection, the authors carried out investigations on dogs anesthetized by chloral hydrate. The injections were made in the peripheral end of the left femoral artery, in the opposite femoral artery or in the axillary humeral artery. Observations on the general blood pressure and the blood pressure distal to the site of injection were recorded with the aid of a kymograph. Various solutions were used. The authors concluded that isotonic solutions did not affect the central pressure and had no effect or only an insignificant one on the recurrent pressure. Hypotonic solutions did not affect the central pressure but caused an initial hypertension followed by a considerable drop in pressure in the peripheral region. Hypertonic solutions caused general hypertension but a severe and lasting hypotension later in the peripheral circulation. The hydrogen ion concentration of the solutions also was of some significance. When the p_H was less than 7, marked changes in the peripheral pressure were noted. These factors should be of importance in choosing substances for intra-arterial injection, though much further work remains to be done.

44: 689-712 (April 25) 1936. Partial Index

*Place of Lymphatic Vessels in Genesis of Tuberculous Infection of Lung. F. Arloing and É. Berthet.—p. 689.
Posterior Spinal Arachnoid Interlacing Fibers. T. Alajouanine, T. Hornet and R. André.—p. 691.
Roentgenologic Problem of Hydatid Cyst of Lung. J. Belot and G. Peuteuil.—p. 696.
Gas Encephalography by Lumbar Route. T. de Martel and J. Guillaume. —p. 701.
Prethoracic Esophagoplasties. H. Hilarowicz and E. Michalowski.—705.
*Cure of Nontuberculous Pleural and Pulmonary Suppurations with Persistent Cavitation. É. Curtillet.—p. 707.
Acute Hemorrhagic Adrenal Inflammation. E. Rutishauser and H. Barbey.—p. 710.

Lymphatic Vessels in Pulmonary Tuberculosis.—Arloing and Berthet injected a culture of virulent tubercle bacilli diluted 1:10,000 into the right paratracheal ganglion or the conjunctival culdesac of guinea-pigs. The animals were killed from several days to several weeks after the injection. In the animals examined several months after the inoculation a generalized infection of all the organs with multiple fibrocaseous nodular lesions was noted. In the animals killed between five and twenty days after the inoculation, lesions of the stroma and perilobulitis characterized by infiltration of the interalveolar tissue with histiocytes were found. In cases in which india ink had been added to the infectious material the particles of ink were found in the form of black granulations in the protoplasm of some histiocytes of the stroma. The fact that all the lesions were bilateral suggested that the dispersion of bacilli was generally both by the lymphatic and by the blood channels. The authors concluded that lesions of the stroma preceded those of the alveoli. It is certain that the route of penetration of bacilli plays a part in the determination of the anatomoclinical form of the tuberculosis, but other factors enter equally, especially those of resistance and bacillary virulence.

Pleural and Pulmonary Suppurations with Persistent Cavitation.—Curtillet stresses the importance of systematic examinations of the lungs with iodized poppy-seed oil after the apparent clinical cure of bronchiectasis or cavitation. In many instances these examinations will reveal the presence of a persisting cavity and furthermore aid in the determination of the method of disappearance of the cavity. Evidence points to the decrease in the size of the cavity and sometimes its eventual disappearance by epithelization. Since this is apparently the normal method of recovery, the author believes that demonstration of a persistent cavity may lead to rational intervention by means of closure of the persisting fistula. Since the result of this procedure is epithelization, it cannot be said to interfere with the normal method of healing.

Schweizerische medizinische Wochenschrift, Basel

66: 413-452 (May 2) 1936. Partial Index

*Insulin Sensitivity. F. Rathery, Froment and Bargeton.—p. 413.
Dermatotherapy. J. Jadassohn.—p. 420.
Sugar, Honey and Wound Balsams in Their Action on Infected Wounds. W. von Gonzenbach and S. Hoffmann.—p. 425.
Therapeutic Progress in Sphere of Gastro-Intestinal Diseases. A. von Domarus.—p. 429.
Treatment of Chronic Constipation. G. Modrakowski.—p. 431.
Medical Treatment of Epileptic Conditions. A. Ulrich.—p. 444.
*Bee Venom Therapy. M. Kosier.—p. 447.

Insulin Sensitivity.—Rathery and his associates emphasize that each person reacts in his own manner to insulin. For this reason it is impossible to base insulin dosage on the degree of reduction of glycemia produced by insulin in rabbits or on a fixed rate of utilization by insulin of a certain quantity of carbohydrates. The authors point out that there are some cases of diabetes which are resistant to insulin, whereas others have a hypersensitivity to insulin. They differentiate between permanent and intermittent hypersensitivity to insulin. They show that their observations on hypersensitivity to insulin are of therapeutic importance in that they demonstrate the importance of constant control of diabetic patients undergoing insulin treatment.

Bee Venom Therapy.—Kosier resorts to the injection of bee venom particularly in cases that do not respond to the usual medicinal and physical therapy. He uses it in all forms of arthritis, particularly in the subacute and chronic forms, also in arthritis deformans, periarthritis, myalgias, neuralgias and neuritides. However, he considers the treatment contraindicated in patients with high fever or tuberculosis; that is, in those in whom all forms of irritation therapy are to be avoided. He injects it intracutaneously into the dorsal sides of the extremities or the trunk or into the skin of the diseased joints. He advises against the injection into the volar side of the extremities, because the edema might assume large dimensions in case of severe local reaction. The neighborhood of the neck should likewise be avoided. The doses have to be adapted to the individual case, but the first dose is usually 0.05 cc. In case of severe local reaction the same dose is repeated after three or four days, and after that the doses are gradually increased by 0.05 cc. In patients who are less sensitive, 0.1, 0.2, 0.3, 0.4 and up to a maximum of 0.5 cc. are given at intervals of three or four days. In all, the patient is given from five to eight injections. In order to avoid necrosis of the skin, not more than 0.1 or 0.15 cc. should be deposited in one puncture. The local reaction may be slight or severe. General reactions are extremely rare. The author gives the clinical histories of some of the patients and a tabular report of the results he has obtained in sixty-six cases. He obtained the best results in arthritis deformans, humeroscapular periarthritis and various neuralgias and myalgias.

Annali Italiani di Chirurgia, Naples

14: 1077-1236 (Oct.) 1935

Histologic Modifications of Ovary Following Hyperhormonization by Estrogenic Substance: Experiments. M. Proto.—p. 1077.
Biologic Investigation of Functions of Cecal Appendix in Man and Animals. C. Stefanelli.—p. 1097.
Histopathologic Study of So-Called Cystic Chronic Mastitis. G. Perazzo.—p. 1119.
*Idiopathic Pure Pyloric Hypertrophy in Adults: Cases. G. S. Donati.—p. 1145.
Mesenteric Cyst Causing Intestinal Occlusion: Case. F. Pagliani.—p. 1175.
Glycemia in Traumatic Experimental Shock. T. Virnicchi.—p. 1191.
Acute Appendicitis in the Old. O. Amorosi.—p. 1211.

Idiopathic Pyloric Hypertrophy in Adults.—Donati reports two cases of pure pyloric hypertrophy in women aged 28 and 40, respectively. The author states that the disease is more frequent in women than in men. From early life the patients show recurrent gastric disturbances, which become intensified as the condition develops. The clinical diagnosis, especially of atypical benign forms, is difficult. When the disease is already developed, the clinical symptoms and objective and roentgen signs are those of pyloric stenosis due to ulcer. The anatomic lesion involves the muscular layers of the pylorus without involving the layers of the gastric wall. Pure pyloric hypertrophy is entirely different from inflammatory and sclerous, neoplastic and myomatous forms of pyloric hypertrophy. It is equivalent in adults to pyloric hypertrophy in infants. Certain zones around the pylorus are more intensely involved than others in the pure hypertrophic process. Both congenital and acquired factors, especially those related to the production of pyloric spasm, are involved in the pathogenesis. The treatment is surgical, especially in grave cases complicated by emaciation. The rather frequent finding of the condition at necropsy proves that the disease is not as rare as has been believed.

Prensa Médica Argentina, Buenos Aires

23: 909-966 (April 8) 1936

*Roentgen Irradiations in Treatment of Hypertrichosis. C. H. Niseggi and F. Vierheller.—p. 909.
Apparatus for Traction in Fractures of Forearm and Wrist.—L. A. Weber.—p. 911.
Roentgenokymography. A. Battro.—p. 914.
Crisis of Diarrhea in Exophthalmic Goiter. C. B. Peró.—p. 924.
*Pseudo-Ascites. N. Vallejos Meana.—p. 927.
Normal Somatology of Women. V. Carro.—p. 940.
Bismuth Treatment in Acute Tonsillitis. J. M. Tato and V. E. R. Carri.—p. 955.

Roentgen Irradiations in Treatment of Hypertrichosis.—Niseggi and Vierheller advise roentgen irradiations in the treatment of hypertrichosis. The irradiations are given with a relatively soft beam of rays of between 60 and 120 kilovolts through a 1 mm. aluminum filter. It is advisable to divide the irradiation area into small fields with a maximal space of 10 by 15 mm. per field. The irradiations are given once a month. The first irradiation is 70 per cent of the skin erythema dose, which is calculated at 800 roentgen units including diffuse rays. The following doses are 60 per cent of the erythema dose. As a rule, six irradiations complete the treatment, which produces complete and permanent depilation. The treatment is harmless. In certain cases it causes temporary irritation of the skin or other local disturbances, which disappear in about twenty-four or thirty-six hours. The patients treated by the author have been seen some time after completion of the treatment. In all cases the treatment left no marks and the growing of superfluous hair never returned.

Pseudo-Ascites.—Vallejos Meana describes under the name of pseudo-ascites a rare syndrome, which is similar to typical ascites but of different pathogenesis. The syndrome consists in an extraperitoneal abundant accumulation of pseudo-ascitic fluid, located between the facia transversalis and the anterior layer of the parietal peritoneum, which is repelled inward together with the abdominal and pelvic organs enclosed by it. The fluid may be hematic, purulent, urinary or a mixture of these, according to the etiology. It forms and reproduces itself rapidly and in the florid period of the disease it occupies, extraperitoneally, about three fourths of the abdominal cavity from one to another of the parietocolic spaces and from the pelvis to the epigastric region. The syndrome is the result of a tumoral renal process (adenocarcinoma in the case of the author), which produces alterations of the parenchyma, perinephric hemorrhage, ureteral obstruction, infiltration and contamination of the perirenal fat, rupture of the anterior layer of the renal fascia by intrapelvic pressure of a purulent fluid, formation of pseudo-ascitic fluid between the fascia transversalis and the parietal peritoneum, and dissociation of the two structures. The syndrome follows an apparently benign evolution during the first and second periods, in which clinical diagnosis is difficult, although it can be made by the following signs and symptoms: In the early period, which corresponds to the onset of the renal intrapelvic and urinary disturbances, the patient complains of general malaise and intermittent slight renal pain. In the second period, which corresponds to the formation of the effusion, the symptoms increase although they are never intense, the renal tumor can be felt by palpation and the accumulation of the pseudo-ascitic effusion is already noticeable at the iliac fossa of the side of the pathologic kidney. The third period is grave. The clinical picture is that of typical ascites. Pseudo-ascites can be differentiated from the several forms of ascites of liver cirrhosis by the asymmetry of the abdomen, which is more prominent on the side of the pathologic kidney, asymmetry of the area of dulness on percussion, late appearance of collateral circulation at the flanks, and especially by the nature of the pseudo-ascitic fluid obtained at the first puncture. While the fluid in cirrhotic ascites is a transudate, the pseudo-ascitic fluid is not, and in a large number of cases it contains urinary constituents, such as urea, chlorides and sediment. The treatment consists in evacuation of the fluid and nephrectomy. One case is reported.

Progresos de la Clínica, Madrid

44: 257-340 (April) 1936

Problem of Invalidism and Its Solutions: Actual Conditions in Spain. M. Bastos.—p. 257.
Syphilis Reinfection and Superinfection: Cases. E. de Gregorio.—p. 268.
Physiopathology of Digestive Apparatus. J. A. Sánchez Martínez.—p. 277.
Postoperative Progressive Cutaneous Gangrene: Case. J. Escobar Delmas.—p. 293.
*Importance of Lambliasis in Pathology of Digestive Apparatus. L. Ibarrola Solano.—p. 298.
Free Fibrin Body in Cavity of Artificial Pneumothorax: Case. E. Jubés.—p. 315.
Nupercaine Spinal Anesthesia: Results Obtained. J. Martín Vivaldi.—p. 318.

Lambliasis.—Ibarrola Solano states that in the majority of cases the lamblias live in the duodenum or first part of the jejunum; in exceptional cases they penetrate the gallbladder. Lamblias may exist in the intestine of normal persons without causing symptoms, but in other cases they produce intestinal, gallbladder, hepatic, or gastric disturbances. The intensity of the disturbances is related to the number of infesting parasites. The most frequent symptoms are diarrhea, fever, headache, anorexia, allergic reactions and loss of weight due to the absorption of toxic metabolic products of the parasites. The toxemia is harmful to the bone marrow, as shown by blood changes. Lymphocytosis and eosinophilia are the most frequent changes. Intravenous or intraduodenal injections of arsenicals, associated with drainage of the gallbladder, are the best treatment. The intravenous treatment consists of injections of arsphenamine in doses of from 0.03 to 0.06 Gm. per injection. The number of injections depends on the extermination of the parasites, which is proved by their absence in the duodenal and biliary secretions obtained by duodenal drainage after intraduodenal injection of a 33 per cent solution of magnesium sulfate. The total dose of arsphenamine during the entire treatment does not exceed 1 or 1.8 Gm. The intraduodenal treatment consists of two injections of arsphenamine in doses of 0.03 and 0.06 Gm., respectively, dissolved in 200 cc. of distilled water, given with an interval of five days between injections. The intravenous or intraduodenal treatment is associated with drainage of the gallbladder stimulated by the injection of a 33 per cent solution of magnesium sulfate through the duodenal catheter. Eleven cases are reported.

Beiträge zur Klinik der Tuberkulose, Berlin

87: 647-740 (April 21) 1936. Partial Index

Respiration and Circulation in Artificial Pneumothorax. H. Reichel. —p. 647.

*Local Differences in Allergy and Their Prognostic Significance. Gusti Brings-Waldstein.—p. 688.

Estimation of Alveolar Oxygen Tension in Respiration of Oxygen Deficient Air Mixtures and in Decreased Air Pressure. A. J. Anthony.—p. 693.

*Primary Tuberculous Focus at Vaginal Introitus: Case. K. Hüseyin. —p. 708.

Rôle of Tuberculosis in Marriage. L. Vajda.—p. 713.

Local Differences in Allergy.—Brings-Waldstein says that it has been known that the cutaneous allergy for tuberculin is not the same all over the body. She cites reports which corroborate this and also shows that the outcome of the cutaneous tests has considerable diagnostic significance. Her investigations aimed at determining whether there is a difference in the intensity of the cutaneous reactions on the two sides of the thorax in patients with unilateral pulmonary and glandular processes. In children with unilateral processes, Mantoux tests were made with various concentrations and on different sites. It was found that the allergy is extremely intense in children with tuberculous pulmonary and glandular processes without cavernous disintegration, for it is possible to produce reactions with greatly diluted tuberculin solutions. In cases with tuberculosis of the hilus glands, secondary infiltration and pleurisy, there is no difference in the allergy of the "healthy" and the diseased side. In children with pulmonary and glandular processes that have a tendency to heal, the allergy is greater over the diseased than over the healthy organ; in processes without a healing tendency, the allergy is less intense over the diseased organ than over the healthy one, or it is the same over the two. This shows that the allergy test is helpful in determining the prognosis.

Primary Tuberculous Focus at Vaginal Introitus.—Hüseyin reports the case of a woman, aged 25, with a negative anamnesis as regards tuberculosis, who developed the first symptoms (fatigue, chills) one month after marriage. Subsequently she developed leukorrhea, and swelling of the labia and of the inguinal glands. The ulceration of the vagina was repeatedly examined for spirochetes, but none could be found. The pus of suppurating lymph nodes was examined on Löwenstein's culture medium and by the animal test, and in both cases the results indicated tuberculosis. Roentgenoscopy of the lungs of the woman disclosed no signs of tuberculosis. Since the vaginal ulcer originated at the hymenal tear and since the regional lymph nodes became rapidly involved, the thought of a primary infection seems justified. Development of the process immediately after marriage suggested that the husband might be the source of the infection. His examination disclosed an open pulmonary process and bacilli in the sputum.

Beiträge zur klinischen Chirurgie, Berlin

163: 337-512 (April 15) 1936. Partial Index

*Treatment of Perforation of Gastroduodenal Ulcer. H. Gatersleben and K. Zitzmann.—p. 337.

Trauma as Factor in Genesis of Suprarenal Tumors. G. Jorns.—p. 354.

Contribution to Gallstone Surgery. E. Melchior.—p. 365.

Foreign Body Ileus After Appendectomy. G. Loewe.—p. 384.

Nature and Treatment of Hemolytic Shock After Blood Transfusion in Light of Experimental and Clinical Investigations. E. Hesse.—p. 390.

*Maggot Treatment of Chronic Osteomyelitis. H. J. Lang.—p. 406.

Treatment of Perforation of Gastroduodenal Ulcer.—Gatersleben and Zitzmann report for a period of eight years forty-two cases of perforation of gastroduodenal ulcer in which operation was performed. Their immediate mortality amounted to 23.8 per cent. The authors were able to follow up thirty patients. The best immediate as well as late results were obtained with partial gastric resection. This operation, however, could be applied only in a small number of carefully selected cases. The authors practiced a simple suture of the perforation in all cases not suited for the formidable operation of partial gastric resection. The results were quite satisfactory. Poorest results were obtained when a gastro-enterostomy was added to the suture of the perforation. The authors therefore feel that the latter should be entirely abandoned.

Maggot Treatment of Chronic Osteomyelitis.—According to Lang, maggot therapy, as applied in the Third Surgical clinic of the University of Berlin in cases of chronic osteomyelitis, demonstrated beyond doubt the favorable influence of live maggots on necrotic tissues. The wounds rapidly take on a clean appearance and display fresh healthy granulations. Baer's "living antisepsis" proved to be effective in cases of chronic osteomyelitis which had resisted other therapeutic methods. The author doubts the possibility of successfully substituting an extract of maggots for the living maggots and their enzymes.

Deutsche medizinische Wochenschrift, Leipzig

62: 669-716 (April 24) 1936. Partial Index

Development of Methods of Irradiation of Cancer. A. Pickhan.—p. 669.

Osteoporosis of Spinal Column as Disease Entity and Its Clinical Significance and Importance in Insurance Law. W. Imhäuser.—p. 677.

New Treatment of Acute Gastric Ulcer. L. Bayer.—p. 679.

*Roentgen Irradiation as Method of Choice in Beginning Puerperal Mastitis. W. H. Hanne.—p. 683.

Roentgen Irradiation in Beginning Puerperal Mastitis.—Observations in thirty cases convinced Hanne that roentgen irradiation is the method of choice in incipient puerperal mastitis. He always applied 20 per cent of the unit skin dose at a tension of 170 kilovolts, with a filter of 0.5 mm. of copper and 0.5 mm. of aluminum and a focus skin distance of 30 cm. Depending on the extent of the inflamed area, the fields were 6 by 8 or 10 by 15 cm. This treatment was always successful and an incision was never necessary. The author rejects the use of 40 per cent of the unit skin dose, because he found that 20 per cent of the dose produced the desired results and preserved the lactation capacity of the women, which is not possible if 40 per cent of the unit skin dose is given. To be sure, even the smaller dosage impairs the milk secretion somewhat, for, although the milk secretion of the irradiated breast increases again after five or eight days, it does not reach the yield of the nonirradiated breast.

Klinische Wochenschrift, Berlin

15: 505-544 (April 11) 1936. Partial Index

Experimental Glomerular Nephritis. T. Fahr.—p. 505.

*Antithyroid Action of Adrenal Cortex. C. Oehme.—p. 512.

Quantitative Studies on Elimination of Hormone of Anterior Hypophysis in Urine. C. Ehrhardt.—p. 514.

Disturbances in Passage Through Esophagus Caused by Sclerodermia and Progressive Muscular Dystrophy. K. Kuré, K. Yamagata, S. Tsukada and J. Hiyoshi.—p. 516.

Volume of Blood Flow from Heart in Erect and Reclining Position. H. Ude.—p. 520.

*Demonstration and Significance of Tyrosine in Urine. M. Weiss.— —p. 521.

Clinical Significance of Duodenal Diverticula. K. Steuer.—p. 524.

Antithyroid Action of Adrenal Cortex.—Oehme investigated adrenal cortex extract for its inhibiting effect on the action of the thyroid or of thyroxine. He found that an adrenal cortex extract which was free from cevitamic acid suppresses to some extent the chronic hyperthyroidism that is induced in guinea-pigs; the increase in the basal metabolic rate produced by the daily administration of thyroxine is slight or entirely absent if adrenal cortex extract is given at the same time. The author was able to corroborate that cevitamic acid has practically the same effect. He concludes from these observations that the adrenal cortex contains two antithyroid substances, which are not identical with vitamin A or with tyrosine. The reduction of the action of thyroxine by means of tyrosine could likewise be corroborated. In studies on the newly discovered antithyroid principle of the adrenal cortex, it was found that it is destroyed if it is exposed for from one to two hours to a stream of oxygen at a p_H of 9.3 and a temperature of 38 C. (100.4 F.). It does not prevent the histologically demonstrable activation of the thyroid by the thyrotropic hormone of the anterior lobe of the hypophysis. The author discusses the rôle of the adrenal cortex in the pathogenesis and treatment of hyperthyroidism.

Significance of Tyrosine in Urine.—Weiss points out that degenerative processes in the liver lead to the elimination of tyrosine in the urine. However, since the method of demonstration formerly in use was rather complicated, the occurrence of tyrosine in the urine did not attain the diagnostic and prognostic significance it deserves. The author describes a method which has the advantage of greater simplicity and sensitivity and of a nearly absolute specificity. The test is based on the fact that tyrosine (as well as the frequently accompanying

leucine) is precipitated by alcohol. The author mixes 20 cc. of urine, either in its native acidity or following slight acidification with acetic acid, after simple filtration, with 60 cc. of concentrated alcohol. After this mixture has been left standing for two hours, typical tyrosine crystals can be seen in the settled sediment of the urine of many patients with liver disease. After a little while the sediment is filtered off and washed once or twice with alcohol. The residue is dissolved in 3 cc. of a 2 per cent lye solution and, after slight acidification with two drops of glacial acetic acid, Millon's test is made. If tyrosine is present, slight warming or fifteen minutes of cold storage will produce a noticeable red coloration of the fluid. In cases with a considerable amount of protein sediment, this may become red; however, proof of a positive tyrosine reaction is the red coloration of the fluid standing above it, provided, of course, the presence of medicaments (salicylates) can be excluded. Millon's reaction is usually positive when tyrosine crystals are present. The microscopic demonstration of tyrosine is even better than the chemical test. The tyrosine crystals have a characteristic appearance. The author reproduces a photomicrograph of leucine spheres and tyrosine crystals. To be sure, in the presence of large amounts of other crystallizing substances, there is the possibility that the tyrosine crystals are covered up. For this reason it is advisable, if there are strongly positive chloride and protein reactions, to extract these substances first and to make a search for tyrosine crystals only in the second precipitate. The author found the examination of the urine for the presence of tyrosine (and leucine) by means of this method helpful in the estimation of the condition of the liver in various disorders. In the majority of the examined cases, tyrosine was an accompanying symptom of hepatic disorders. It was found not only in the severe forms but also frequently in the milder forms, and it was sometimes absent in the severe disorders (cirrhosis of the liver and catarrhal icterus). However, it is nearly always detectable during an acute attack in gallstone disease and in some pancreatic disorders, particularly those that are accompanied by gallstone disease. The author admits that tyrosine and leucine are never pathognomonic for a disease; nevertheless, he regards his test as valuable in diseases of the liver.

Medizinische Klinik, Berlin

32: 557-588 (April 24) 1936. Partial Index

General Pathologic Aspects of Collapse Therapy of Pulmonary Tuberculosis. T. Wedekind.—p. 557.
Consumption of Alcohol in Relation to Race, Occupation, Age and Season. R. Bandel.—p. 559.
*Hypoglycemic Conditions in Patients with Gastric Diseases and Their Significance for Gastric Surgery. T. Straaten and M. Hünermann.—p. 562.
Question of Cure of Endocarditis Lenta. H. Kraiss.—p. 566.
Treatment of Abdominal Typhoid with Continuous Administration of Small Doses of Aminopyrine. F. Bardachzi and H. Herzum.—p. 567.

32: 589-620 (May 1) 1936. Partial Index

Varices in Esophagus. G. Lotheissen.—p. 589.
Adaptability of Organism to Dextrose. E. Bauer.—p. 592.
*Hypoglycemic Conditions in Gastric Diseases in Their Significance for Gastric Surgery. T. Straaten and M. Hünermann.—p. 594.
*Disturbances in Acid Secretion of Stomach in Hyperthyroidism. A. Sylla and Lotte Sylla.—p. 598.
*Dangers of Iodine Therapy in Lead Poisoning. K. Fellinger.—p. 600.
Course of Lobar Pneumonia During Childhood. C. Ewstatiew.—p. 601.

Hypoglycemia in Patients with Gastric Diseases.—Straaten and Hünermann point out that the postoperative disturbances represent a difficult problem in gastric surgery. Investigations in recent years disclosed that the blood sugar conditions play an important part. The disturbances in the blood sugar curve after oral sugar tolerance tests throw more light on the estimation of postoperative disturbances after gastric resection. The authors decided to investigate to what extent the changed carbohydrate metabolism and particularly hypoglycemic conditions are responsible for the postoperative difficulties after operations on the stomach. They describe their observations in the course of sugar tolerance tests on forty-eight patients. They found that the hypoglycemic reaction after sugar consumption is not a reaction that is specific for the stomach that has been operated on. It occurs in patients who have undergone gastric operations, in patients with ulcer or gastritis, who have not been subjected to surgery, and in other diseases, particularly during the period of convalescence. The authors discuss the causes of the alimentary hypoglycemia in patients with gastric diseases and in those having undergone surgical interventions on the stomach. They think that vagotonia, the condition during convalescence and especially the changed resorption mechanism are responsible. The mechanism of resorption may be altered in gastritis, duodenitis and jejunitis and because of changes in evacuation. They say that the individual hypoglycemic attack can be counteracted by the administration of dextrose. The predisposition to hypoglycemia is best influenced by frequent small meals and by not onesidedly preferring carbohydrates. The use of a special surgical technic to produce evacuation mechanisms that resemble the normal ones will prevent the hypoglycemic reaction in many cases. Von Haberer's technic of gastric resection largely fulfils these requirements.

Acid Secretion of Stomach in Hyperthyroidism.—The Syllas call attention to the fact that gastro-intestinal disturbances are comparatively frequent in hyperthyroidism. They subjected seventy-four patients with exophthalmic goiter to fractional withdrawal of the gastric contents after a caffeine test drink and detected anacidity in 50 per cent of these cases. They consider the inhibiting action of the overstimulated sympathetic the cause of the reduced gastric secretion. They reject a relationship to pernicious anemia. A connection between acidity and the diarrheas that occur in patients with exophthalmic goiter could be proved in only a few of the cases. The authors think that it is advisable to examine the gastric juice from time to time in patients with exophthalmic goiter.

Dangers of Iodine Therapy in Lead Poisoning.—Fellinger points out that lead poisoning is often automatically treated with potassium iodide. The daily doses vary between 1 and 3 Gm. The author observed a number of patients with lead poisoning, in whom more or less severe symptoms of hyperthyroidism developed. Nearly all were patients who for longer periods had been treated with potassium iodide. Symptoms, such as profuse sweating, emaciation, nervousness and mild tremor, were ascribed by the patients and also frequently by their physicians to the lead poisoning. However, since these symptoms were observed only in the cases of lead poisoning in which iodine therapy had been used and since in the early cases they had a tendency to disappear after the medication with potassium iodide was discontinued, it cannot be doubted that they were caused by the iodine. In this connection the author stresses the iodine sensitivity of the population of Vienna and of the Alpine regions in general. He describes the clinical histories of five patients and points out that younger persons seem to be in greater danger of developing iodine hyperthyroidism, but that older persons also develop it occasionally after having tolerated it for a while. He shows that the potassium iodide therapy is best for the after-treatment of lead poisoning in the so-called state of latency, for it aids in mobilizing and eliminating the lead depots in the organism, whereas during the earlier stages it may even elicit colics, for it is now generally accepted that the lead which circulates in the blood and not the lead which is deposited in the body causes the symptoms. Moreover, it is essential to keep the patient under strict supervision as long as he receives iodine therapy, and, as soon as tachycardia, sweating or emaciation appears, it should be broken off.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

102: 1-128 (April) 1936. Partial Index

Complete and Incomplete Cycle, True Menstruation and Pseudomenstruation. L. Seitz.—p. 1.
*Electrocardiographic Studies in Eclampsia and Preeclampsia. H. Eufinger and H. Molz.—p. 17.
Diagnosis of Full Term or Almost Full Term Ectopic Pregnancy. W. N. Wlassow.—p. 22.
Origin and Types of Abdominal Pregnancy. G. Duseberg.—p. 30.
Direct and Distant Results of Cesarean Section. J. N. Polonsky.—p. 43.

Electrocardiographic Studies in Eclampsia.—Eufinger and Molz made electrocardiographic studies on seventeen women with severe preeclampsia and on six women with eclampsia. They never detected electrocardiographic evidence of a direct cardiac impairment by the eclampsia. In six cases, or 26 per cent, the electrocardiographic aspects indicated a predominance

of the left side of the heart. Electrocardiographic control tests on eighty pregnant women without eclampsia disclosed this picture in only two cases (2.5 per cent). The authors designate as a predominance of the left side of the heart that condition in which the chief wave of the initial complex is directed upward in the first lead and downward in the third lead. The authors conclude that as the result of the increase in the peripheral resistances in preeclamptic and eclamptic women the left ventricle has a tendency to hypertrophy in order to be able to meet the increased requirements. They emphasize once more that they never observed evidence of a direct impairment of the heart.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

112: 273-431 (April 21) 1936. Partial Index

*Behavior of Androgenic Substance ("Testis Hormone") in Female Organism at End of Pregnancy. H. Goecke.—p. 273.
Sterlizing Hormone of Placenta. Meta Schnock.—p. 291.
Urobilinogen Content of Urine in Pregnancy and in Pregnancy Toxicoses. H. Mittelstrass.—p. 309.
Action of Insulin on Uterine Musculature. E. Klaften.—p. 318.
Pathology and Clinical Aspects of Ten Cases of Primary Tubal Carcinoma. K. Schmidt.—p. 339.

Androgenic Substance in Female at End of Pregnancy.—Goecke reports investigations on the occurrence and behavior of androgenic substance ("testis hormone") in the female organism at the end of pregnancy. He detected androgen in 71 per cent of the placentas of female fetuses, whereas its demonstration was never possible in placentas of male fetuses. These observations were corroborated by studies on the placentas of binovular twins of different sexes, in that only the placentas of girls contained androgen. The absence of androgen from the placentas of boys is thought to be due to the fact that the hormone is utilized during the intra-uterine life for the structure of the male fetus. It was impossible to demonstrate androgenic substance in the tissue of cystic mole, but, since the urine of women with cystic mole contains large amounts of androgen, the assumption seems justified that there is no definite relationship between the quantity of androgen in the placenta and the amount that is excreted in the urine. The amniotic fluid contained only small traces of androgenic substance, regardless of whether the fetus was male or female. Androgen was found in the urine of women during the later stages of pregnancy when a boy was born later, not when a girl was born. Thus the elimination of androgen in the urine is the reverse of the androgenic content of the placenta. The author gives the following explanation: The placenta of a male fetus produces considerable amounts of androgenic substance, but because of greater requirements of the male fetus it quickly passes into the blood stream, so that it is eliminated in the urine but cannot be detected at the site of production; the placenta of a female fetus, however, stores androgen, so that it is demonstrable in the placenta but not in the urine. He suggests that the behavior of androgenic substance in the urine at the end of pregnancy permits, with some degree of reliability, a forecast of the sex of the fetus.

Wiener klinische Wochenschrift, Vienna

49: 513-544 (April 24) 1936. Partial Index

Influenzal Meningomyelitis. D. Laszlo and K. Nowotny.—p. 518.
Late Results of Gastro-Enterostomy in Gastroduodenal Ulcers. F. Starlinger.—p. 521.
*Clinical Utilization of Edelmann's Great Toe Phenomenon. E. Hammerschlag.—p. 523.
Pathogenesis of Progressive Muscular Dystrophy. A. Rottmann.—p. 529.

Clinical Use of Great Toe Phenomenon.—Hammerschlag shows that cerebral edema may develop in the course of a generalized stasis of cardiac decompensation, in severe anemias and cachexias, in vasoneurotic conditions, in severe infections and intoxications, and in diseases of the brain, such as hemorrhages, tumors and inflammations. The edema may not involve the entire brain but affect only some portions. The clinical manifestations of cerebral edema differ. In the severe cases the neurologic symptoms, although varied, permit a diagnosis; in the milder cases the diagnosis is often difficult. However, Edelmann's great toe phenomenon is pathognomonic for cerebral edema. The author searched for it in a large number of patients with chiefly internal disorders, in most of whom neurologic complications were not expected. He gives a summary report of his observations on 100 cases in which he found the symptom positive. He elicits the reflex as follows: The patient lies flat; the examiner holds down the knee with the left hand, grasps the calf with the right hand and then bends the leg at the hip joint. In case of a positive reflex, there is dorsal flexion of the great toe. Occasionally it appears at a bending of only 45 degrees, but sometimes the leg has to be bent back beyond the vertical position. Occasionally there results a crossed reflex (toe of the other foot). The author refutes the objection that Edelmann's great toe reflex is identical with Babinski's reflex (indicative of a lesion of the pyramidal tract) and shows that it actually indicates cerebral or meningeal edema and not pyramidal lesions. Of the 100 patients in whom the sign was positive, sixty-three had cardiovascular disorders, fifteen had infectious diseases (influenza, pneumonia and so on) or severe intoxications (carbon monoxide, pancreatitis and others), twelve had disorders of the nervous system, such as meningitis, encephalomyelitis, epilepsy, cerebral hemorrhage and cerebrospinal syphilis, four had hematopoietic disorders and six had a severe cachexia. The author concludes that the sign helps in the early recognition of cerebral edemas of various origins.

Klinischeskaya Meditsina, Moscow

14: 163-306 (No. 2) 1936. Partial Index

Basic Principles in Treatment of Schizophrenia. V. A. Gilyarovskiy.—p. 163.
Radium in Medicine. M. I. Karlin.—p. 177.
Madura Foot. M. A. Chlenov, T. P. Polyakov and V. A. Shtark.—p. 183.
*Symptomatology of Rheumatic Carditis. Ya. G. Etinger and V. E. Nezlin.—p. 192.
*Morbidity of Acute Rheumatism. M. D. Kuznetsov.—p. 210.

Rheumatic Carditis.—Etinger and Nezlin state that clinical signs and electrocardiographic studies demonstrate the existence of myocardial lesions in the great majority of cases of acute rheumatism. Lesions of the endocardium are demonstrable by reconstruction of the history in cases in which definite symptoms of valvular lesions appear sometime after the attack. Diagnosis of endocarditis during the acute attack can be made only on the early appearance of a diastolic murmur at the base of the aorta. Cardiac alterations developing in the course of an acute attack of rheumatic fever are frequently of a reversible character, disappearing with the recovery from joint involvement. Rheumatic carditis uncomplicated by valvular lesions is frequently accompanied by a marked disturbance of the rhythm, without manifestations of cardiac insufficiency. Exacerbation of the rheumatic carditis with or without involvement of the joints is accompanied in many cases by signs of cardiac decompensation or by aggravation of the existing insufficiency. Acute exacerbation of the rheumatic carditis with signs of cardiac insufficiency is in many cases erroneously diagnosed in the absence of joint involvement as ordinary decompensation. Exacerbation of carditis may be observed in the course of the entire evolution of the rheumatic process up to the death of the patient from cardiac failure. Aschoff's nodes may be found in the myocardium of about one half of the patients dying from rheumatic cardiopathy. Exacerbations during the period of compensation of a rheumatic heart frequently present a polyarthritic syndrome. Manifestations of joint involvement appear less frequently with the later development of cardiac decompensation leading to a fatal issue.

Morbidity of Acute Rheumatism.—The incidence of acute articular rheumatism, according to Kuznetsov, is 3.2 per cent of all internal diseases. The incidence is subject to seasonal variation, which attains its maximum during the winter and spring months and its minimum during the summer and autumn months. Among the grown-up population the disease occurs with greatest frequency between the ages of 16 and 40. The history in cases of acute rheumatism reveals earlier infections, such as scarlet fever or pneumonia, in 69.2 per cent. According to the author they create conditions favorable to sensitization of the organism. Sore throats are the commonest recent ailments. A clinically demonstrable heart lesion is present in 43.2 per cent of the cases of rheumatic polyarthritis, with the most frequent localization of the process in the mitral valves. Cases of rheumatic polyarthritis can be separated into two

types: those without signs of involvement of the heart and those with involvement of the heart. Recurrence of attacks takes place in 54.3 per cent of the cases, most frequently in those in which there is definite involvement of the heart.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80: 2103-2182 (May 16) 1936

Rickets in Full Grown Rats. M. De Bruin and J. Bouman.—p. 2111.
Rupture of Membranes of Interstitial Pregnancy: Case. C. Van Gelderen.—p. 2116.
*Sensitivity Produced by Neoarsphenamine During Antisyphilitic Treatment. P. J. Van Putte.—p. 2123.

Sensitivity Produced by Neoarsphenamine.—Van Putte found that 10 per cent of the syphilitic patients treated at the Batavia Hospital during 1933 and 1934 suffered from sensitivity to neoarsphenamine and that the third injection offers the greatest possibilities for anaphylactic disturbances. The fatal accidents and the grave disorders have always occurred in cases in which 0.3 or 0.45 Gm. was given at the first injection and 0.6 Gm. at the second or third. By administering systematically 0.075 Gm., 0.15 Gm., 0.3 Gm. and 0.45 Gm. for the first four injections at four day intervals, he has not had any fatalities among 3,000 patients, and the treatment from then on was continued with injections of 0.6 Gm. every five or six days until 5 Gm. of the drug was given. An injection of an oily suspension of bismuth hydroxide, containing 0.1 Gm. of metallic bismuth, was allowed regularly between neoarsphenamine injections. A treatment lasted seven or eight weeks. In serum negative primary syphilis he has given two of these treatments with an interval of rest of one month, and in serum positive primary syphilis, in primary and secondary syphilis and in secondary syphilis three of the treatments with an interval of rest of six weeks between the second and third. All patients have been clinically cured and the Wassermann reaction of the blood and spinal fluid have remained negative. The author takes exception to Hoffmann's "maximal cure," in which from 7 to 8 Gm. of neoarsphenamine is given in six weeks, and points out how impossible it is, under the circumstances, to take Hoffmann's advice to proceed with prudent increase in dosage on account of lack of time.

Hospitalstidende, Copenhagen

79: 397-424 (April 21) 1936

Substance Transport in Diffusion and Secretion in Organism. A. Krogh.—p. 397.
*Dry Pleurisy. E. Strandgaard.—p. 407.
Investigations as to Whether Blood Sedimentation Rate Measured by Westergren's Apparatus Is Dependent on Intake of Food. A. Eldahl.—p. 419.

Dry Pleurisy.—Twenty-eight cases are reported in which dry pleurisy was the main diagnosis. Tuberculous etiology seemed certain in seven cases and highly probable in nine. After-examination shows that fifteen patients have continued well for from two to nineteen years (ten for more than five years); tuberculosis has been established in more than 25 per cent of the material. Strandgaard says that the dominant feature in the disorder is the vague and indefinite nature of both subjective and objective symptoms. Roentgen examination often reveals latent changes in the lungs or small exudates and is called for in every case.

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*Mediastinal Tumors Treated Operatively: Four New Cases. P. Bull.—p. 329.
Medicine in Ancient Norway. I. Reichborn-Kjennerud.—p. 360.
Influence of Feeding Algae on Iodine Content of Milk and Dairy Products. G. Lunde and K. Closs.—p. 377.
Determination of Meridian in Regular Astigmatism with Kinescope S-Disk up to 1 Degree Sharp—Together with Shortened Subjective Kinescopy in Ametropias up to 0.12 D. Colorless Transparent Glass Rod Gives Dark Bank, Which Accordingly Is not "Shadow." S. Holth.—p. 397.
Emile Javal Demonstrated First Radiating Figure for Subjective Astigmometry in 1865. W. Holth.—p. 400.
Rickets-Producing Factor in Cereals: Further Contribution to Understanding of Etiology of Rickets. O. Rygh.—p. 401.

Mediastinal Tumors Treated Surgically.—Bull previously reported two cases of dermoid cyst in the anterior mediastinum in 1929 and one of fibromyoxanthoma in 1931 in which operation was performed; the patients are living and well. In the first case now described, of microscopic diagnosis of myxosarcoma, there was sudden onset with violent pain in the left side of the chest and the left arm and hemothorax. On operation in 1932 a soft tumor, the size of an orange, was excochleated from the posterior mediastinum; the patient continues well. In the second case, of bronchogenic cyst, there were sudden laryngospasms repeated almost daily for two months. Transpleural extirpation of the cyst was done. Death occurred from mediastinitis. In the third instance, a solid tumor microscopically diagnosed as a fibroblastic tumor of moderate malignity was excised from the anterior mediastinum. Thoracoplasty was performed and complete healing resulted. Nine months later hemoptysis occurred and a cavity the size of a walnut appeared under the right clavicle; the operative intervention is believed to have revived an old disorder in the top of the lung. In the last case, atypical sarcoma in the anterior mediastinum, probably from a neurofibroma, there had been paroxysmal coughing with vomiting, sense of oppression and pain radiating to the neck. Roentgen examination showed a tumor the size of an egg in the upper left side of the chest; four months later, in January 1935, the tumor had doubled in size. Preceded by artificial pneumothorax, transpleural extirpation was easily accomplished. The tumor situated above the heart was solid and weighed 184 Gm. In December 1935 the patient was well and had been pregnant for five months. The author emphasizes that mediastinal tumors often set in suddenly and with rather unusual symptoms, as in five of his seven cases, and that it may be difficult to determine before operation whether the tumor is malignant or benign. He says that roentgenography in several planes is necessary for localization of the tumor before operation. Artificial pneumothorax aids in making the roentgenogram clearer, and thoracoscopy is probably the best means for localizing the tumor and at the same time affording an idea of its nature. Rectal ether-oil narcosis may be advantageous in these interventions.

Upsala Läkareförenings Forhandlingar, Uppsala

41: 383-515 (April 15) 1936

*Changes in Electrocardiogram in Orthostatic Circulatory Disturbances. S. Åkesson.—p. 383.
Orthopedic Prophylaxis Outside of Special Orthopedics. P. Haglund.—p. 501.

Electrocardiogram in Orthostatic Circulatory Disturbances.—Åkesson made anthropometric examinations of 200 healthy men, aged 21, in military service, and by means of the index $\frac{\text{chest width} \times \text{chest depth}}{\text{body length}^2}$, or $\frac{ab}{l^2}$, selected the forty of most asthenic and the forty of least asthenic bodily habit for closer examination of electrocardiograms and the blood pressure taken in the standing and in the reclining position. Electrocardiograms recorded in the standing position showed an inversion of T_2 or T_3 in twenty-four cases, or 31 per cent, and of T_2 in three, or 4 per cent. Electrocardiographic examination of forty-five patients with clinical diagnosis of arterial anemia made in the standing position showed an inversion of T_2 or T_3 in thirty-one, or 69 per cent, and of T_2 in twenty, or 44 per cent. The author states that the more marked the degree of asthenia according to the index $\frac{ab}{l^2}$, the greater the decrease in the height of T_3 in the standing position, and also that there is a relation between another index of bodily habit, $\frac{\text{weight}}{\text{body length}^3}$ or $\frac{v}{l^3}$, and the decrease in the height of T_3 in the standing position. The greater the pulse frequency of the standing person, the greater is the decrease in the height of T_3; the greater the rise in his pulse frequency, the greater is the decrease in the height of T_3; and the greater the fall of his systolic pressure and of his blood pressure, the greater is probably the decrease in the height of T_3. In two cases of arterial anemia examined in the pool, the electrocardiographic symptoms disappeared after the orthostatic pressure had been equalized by allowing the water to rise to the height of the heart. In three of the seven persons in the entire material, who fainted during registration in the standing position, the deflections of the electrocardiogram corresponded to those described by other authors in cases of marked excitation of the vagus.